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GEORGE AMARGIANAKIS

AN ANALYSIS OF STICHERA IN THE DEUTEROS MODES

The Stichera Idiomela for the Month of September
in the Modes Deuteros, Plagal Deuteros, and Nenano
Transcribed from the Manuscript Sinai 1230 (A.D.1365)

PART I

Copenhague 1977

Stougaard Jensen/København
Un 55-3

To my wife Anastasia

A part of the printing costs of this
issue of 'Cahiers' has been defrayed by
the Greek State Scholarship Foundation

F O R E W O R D

The Chant of the Greek Orthodox Church has inherited from its past a strongly marked predilection for formulaic composition. Each musical genre has its own characteristic cadential formulas, its own typical progressions, and a number of introductory and connective elements or motifs which link the musical phrases together into a coherent and well structured melodic flow. No matter how thoroughly the melodies have developed and changed during more than 1000 years of written tradition, they still reflect their distant origin in musical practices and habits which were devised to regulate the cantillation and singing of liturgical texts. Behind the written tradition of Byzantine music lie certain ways of putting together the melodic elements - a real com-positional procedure, one might say - governed by rules which were never written down, but which we may still grasp through a careful analysis of the melodies.

The understanding of the compositional principles of the 'classical' Stikherarion style is one of the ultimate goals towards which George Amargianakis's investigations of a restricted number of Stikhera may eventually lead. His transcriptions and analyses, which the Institute for Greek and Latin Medieval Philology has decided to publish in its Cahiers, were submitted to the University of Copenhagen as a licentiate's dissertation in 1976, the fruit of more than two years of hard work. In my capacity of representing the Faculty of Humanities as Mr. Amargianakis's supervisor, I have had ample opportunity to follow the progress of his investigations.

As the reader will soon find out, these two fascicles of the Cahiers are first and foremost intended to be a working instrument, a point of departure for a deeper analysis of Stikheraric melodies in the E modes. Evidently, there remains a great deal of analytical work to be done before we really learn to understand and appreciate the compositional patchwork of such melodies; in this respect, Mr. Amargianakis's work is only the first - though perhaps the most important - step towards a final analysis, eminently well suited to fulfill its purpose. In fact, I can think of no better way to describe an overwhelming mass of details. The numerous indices and tables and lists of occurrences afford as many possibilities of approach as any reader might wish. And if the reader at times feels lost when

facing so many small variants so meticulously described, the recompense will be close at hand for those who follow the author's lead in tracking down one of his formulas. To anticipate critical remarks on the author's use of the term formula, I permit myself to say that Mr. Amargianakis has discussed with me the possibility of exchanging it with the more neutral word element - but this, in turn, had certain inconveniences which in the end made us keep to the somewhat misleading terminology originally chosen. It is my firm conviction that the tenacity which Mr. Amargianakis has displayed in preparing his transcriptions and analyses, will enable himself and his Greek and non-Greek fellow-students to deepen their understanding of the music of his church in the Byzantine period.

Jørgen Raasted

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P R E F A C E

In November 1973 when I participated in a seminar on Byzantine music my teacher Dr.Jørgen Raasted asked me to produce a musicological analysis of a melismatic melody of the Christmas Kontakion Ἡ παρθένος σήμερον. The analysis showed that the melody consisted of a limited number of formulas which, in proper combination, formed units, colons and sections corresponding to those of the text.

To me this discovery was of the greatest importance, although of course it was no real novelty. In fact several investigators of Byzantine music had made the same observation a long time ago and had stressed the need for systematic research in order to reveal the general principles that govern the composition of Byzantine melodies.[1]

However, until now no one has undertaken this systematic research. And for obvious reasons: an investigation of this kind presupposes an enormous amassing of material from a large number of manuscripts such as cannot be performed except by team work over a long period of time.

After my first experience related above I felt a strong desire to carry out an investigation into the field. As my stay in Denmark was limited to two years Dr.Raasted and I agreed that I should start an investigation such as might be completed within this span of time.

The task was defined as follows: A transcription should be made of such melodies of the Stichera of the month of September as belong to the modes Deuteros, Plagal Deuteros and Nenano. The manuscript used for the transcription should be Sinai 1230 (Trapezus A.D. 1365).[2] It should be investigated whether the melodies could be divided into formulas, and if this were proved possible

a) analytic tables of the formulas should be produced and described in detail

1. See Egon Wellesz, A history of Byzantine music and Hymnography[2], Oxford 1961,pp.325-329. Id.Eastern elements in Western chant, Copenhagen 1967, pp.88f. Christian Thodberg, Der byzantinische Alleluiarionzyklus, M.M. B, Subsidia vol.VIII,pp.14o-143. Jørgen Raasted, Some observations on the structure of the Stichera in Byzantine rite, Byzantion vol.XXVIII (1958)pp.529-541.
2. The MS Sinai 1230 was chosen for two reasons: a) the melodies were easily legible, and 2) the number of errors is limited.

b) the frequency of occurrence of each formula and its position in the melodies should be investigated
c) the way in which formulas are combined to form units, colons and sections should be investigated
d) the position of the signatures between the formulas should be determined and their role in the syntactic structure of the melodies studied
e) the individual characteristics of the melodies should be defined and indications that the modes are chromatic should be studied.

Both for intrinsic reasons and because of the lack of precedents and an acknowledged terminology the investigation proved to be an arduous task. Several times I was at the point of giving up. Thanks, however, to by own persistence and the help offered by Dr.Raasted it finally reached completion.

The present study has set itself two goals: a) to set forth all the conclusions obtained in the course of the investigation, and b) to prepare materials for further investigation.

I would like to express in this place a warm thanks to the Greek Scholarship Foundation for its economic support during my post-graduate studies; to the Academy of Science of Athens which permitted me a 34 months' leave for the purpose of studies in Denmark, Germany and Switzerland. I further wish to express my gratefulness to Mr. Spyros Peristeris, who on the appointment of the Greek Scholarship foundation and in his capacity of musicologist followed the course of my post-graduate training with kind interest.

To the authorities of the University of Copenhagen which accepted my application for post-graduate studies and offered me all the facilities necessary for completing my research project I express my sincere gratitude.

I am particularly happy to have had as my supervisor Dr.Jørgen Raasted, Secretary General of Monumenta Musicae Byzantinae. Dr.Raasted not only offered me his neverfailing moral support in the difficulties that I met as a foreign student at the University of Copenhagen, but also provided invaluable help in the solution of the difficult problems that I had to face at various stages of my work. I followed all the courses and seminars he led during my training at the University of Copenhagen, and private talks with him opened new horizons for me in the investigation of Byzantine Music. For all this I want to thank him cordially and express my gratitude.

My sincere thanks are also due to Professor Christian Thodberg who together with Dr.Jørgen Raasted commended the acceptance of my thesis to the

University of Copenhagen and who gave me good advice on how to improve it on certain points.

I further want to thank warmly the staff of the Institute of Greek and Latin Mediaeval Philology, and Professor Pinborg in particular, for their friendship, for the excellent working conditions which they offered me, and for their willing decision to publish my thesis in the 'Cahiers'.

Finally I wish to thank warmly my friend Sten Ebbesen for his kind help in improving the English of the present work.

HOW THE MELODIES HAVE BEEN ANALYSED

The analysis of the melodies carried out in the present study is based on a division into formulas. I should like therefore to state at the very beginning that I use the term "formula" to denote a recurrent sequence of neumes, i.e. a string of signs which occurs several times in the material[1].

Quite often the same formula occurs in melodies belonging to different modes. This situation raises a number of questions which can hardly be answered at present. Are such formulas intermodal, or do they reflect partial modulations from one mode to another? And, if the present-day division into diatonic, chromatic, and enharmonic modes[2] did already exist in the Middle Ages -which, as yet, is an unsettled question- one further complication arises, viz. that in modes which do not belong to the same genos, the same sequence of neumes may express different formulas, depending on the structure of their intervals. The nature of the problem will become clear if we consider a couple of examples:

Example 1:

a) Ἦχος Πλ.Β΄ εὐ προσ δεχ τον — M.M.B.Tr.I.Sept. No. 16,7.
E GF Ga ΓE D

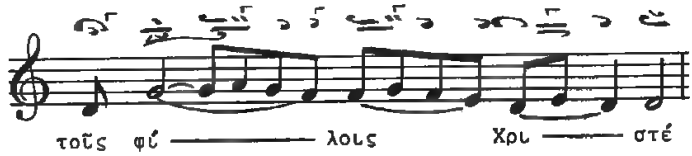
b) Ἦχος Πλ.Α΄ πε πλη ρω ταυ — M.M.B.Tr.I.Sept. No. 63,8.
a GF Ga FE D

1) To obtain a complete analysis of the melodies I have also used the term "formula" for those rare cases where a sequence of neumes occurs in only a single instance in my material.

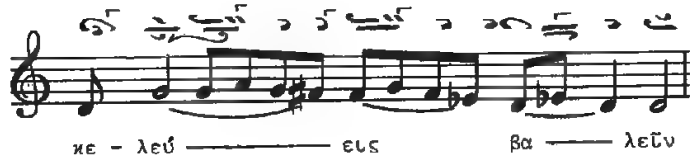
2) In the modern system of Byzantine music the eight modes are divided into three classes (γένη), viz. the diatonic (Protos, Tetartos, Plagal Protos, Plagal Tetartos), the chromatic (Deuteros, Plagal Deuteros), and the enharmonic (Tritos, Barys).

Example 2: (from the modern system of byzantine music).

a) Ἦχος Πλ.Α΄ *



b) Ἦχος Πλ.Β΄**



*) Ἐωθινόν θ΄, Ἦχος Πλ.Α΄, "Ὡς ἐπ' ἐσχάτων τῶν χρόνων....", Ἀναστασιματάριον, Ἔκδοσις "Ζωή", Ἀθῆναι 1972, σελ.233.

**) Ἐωθινόν Ι΄, Ἦχος Πλ.Β΄, "Μετά τήν εἰς Ἅδου κάθοδον", αὐτόθι σελ.282.

In example No 1 case (a) we have the formula which in our division of the melodies into formulas is designated 5Aα. This formula is found 18 times in the melodies under investigation, viz. twice in melodies of the Deuteros mode, 12 times in melodies of the Plagal Deuteros mode and 4 times in melodies of the Nenano mode. But the same formula, i.e. case (b), is also found on several occasions in melodies of the Protos and Plagal Protos modes. The only difference between (a) and (b) consists in that the first begins from E while the second begins from a.

The two formulas are exactly identical as to the contexture of the neumes and they would thus seem to constitute one formula shared by the two modes.

Now the question rises: Does formula 5Aα in fact constitute a formula shared by the two modes, or does it introduce a kind of transformation (modulation)?

The answer can be derived from example No. 2.

In example No.2, cases (a) and (b) the two melodic lines which derive from the Plagal Protos and the Plagal Deuteros modes respectively show an absolute similarity as to the contexture of the neumes. In spite of their similarity, however, the acoustic result is entirely different, for in the first case the intervals are diatonic, in the second they are chromatic.

Three mutually exclusive conclusions can now be tentatively formulated, to explain the problems of Ex. No.1,

a) Formula 5Aα is shared by the modes in question and consequently all the modes are diatonic.

b) Formula 5Aα belongs to the modes Deuteros, Plagal Deuteros and Nenano. When it occurs in the modes Protos and Plagal Protos it constitutes a modulation into the chromatic genus

c) Formula 5Aα belongs to the modes Protos and Plagal Protos. When it occurs in the modes Deuteros, Plagal Deuteros and Nenano it constitutes a modulation in the diatonic genus.

It thus appears that as long as the problem of the chromatic and enharmonic modes remains unsolved it is not possible to state with certainty whether formulas that appear to be shared by modes of different genera are really so.

The combination δι α νοι αν, 11,7 constitutes a formula (1Aα)
G aG FE E
which in exactly this form occurs 34 times within the melodies under investigation. But the same formula is also encountered with slight variations due to the text, i.e. due to the number of syllables or to their accentuation.

Examples: a)
την μνή μην αὐ τῆς· 3,11.
G aG F E E

b)
λό γε καί υἱ έ· 9,2.
a G F E E

c)
φι λο σο φί αν· 14,2.
G a G F E E

d) κύριε δό ξα σοι:- 3,15.
bG a G FE E

In case (a) an extra syllable breaks up the combination of the two apostrophes into two separate apostrophes each having its own syllable.

In case (b) there are two extra syllables. Hence each apostrophe has its own syllable and the ⁓ is transformed into ⁄ because more than two descending neumes follow.

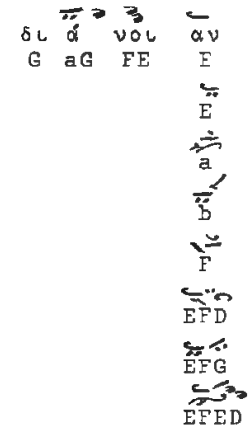
In case (c) there is, on the one hand, an extra syllable and, on the other, the accent falls on the penultimate syllable. Hence the is transformed into a and the final apostrophe into a double apostrophe because of the accentuation of its corresponding syllable.

In case (d) there is an extra syllable in front of the accentuated one. Because of this the formula is extended by the combination added at the beginning.

The same formula may also be found in slightly deviant forms when it is combined with a following formula.

Thus:

Examples



In all the above cases the formula, which is a cadential one, is transformed into a leading-on cadential formula in order to be combined with the following formula[1].

In consequence of the above consideration the formulas were tabulated in such a way that Greek capital letters indicate variants due to the number of syllables and their accentuation, whereas Greek lower-case letters indicate variants at the end (or occasionally at the beginning) of a formula, by means of which the formula in question is connected with the following or preceding formula. It must, however, be observed that the above principle is not always followed slavishly: in order to avoid the creation of a large number of subdivisions I have sometimes used lower-case letters to indicate cases of variants

1. More examples of variations of formulas will be found in the analytical tables on p.p. 212f.

due to syllables and accentuation.

According to their position and function within the melodies the formulas may be:[1]

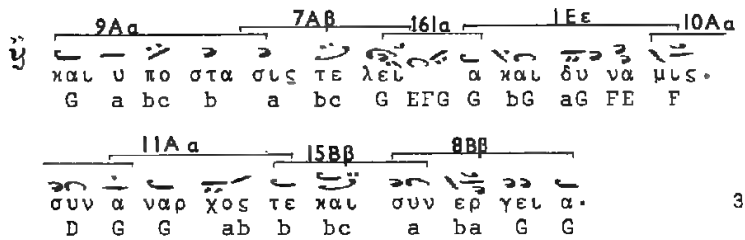
a) Opening when occurring at the beginning of melodies, sections, colons or units.[2]

b) Medial when occurring between other formulas.

c) Cadential when occurring at the end of melodies, sections, colons or units, thus forming various kinds of cadences.[3]

d) Connective when occupying the position of a connective link between two sections, colons or units. Usually connective formulas are split into two parts the first of which is combined with the formula preceding it to form a leading-on cadence, while the second is combined with the formula that follows it to form an opening group.

Thus:



3,5/6.

In the above example formula 9Aα is opening, 1Eε and 8Bβ cadential, 7Aβ, 16Iα and 15Bβ medial. Formula 10Aα is connective; it is split into two parts of which the first is united with 1Eε to form a leading-on cadence (E^F), while the second is combined with 11Aα to form an opening group.

The classification of the formulas into the above categories is by no means easy as the same formula, depending on its position within the melody, may be opening, medial, cadential, connective or opening and cadential at the same time.

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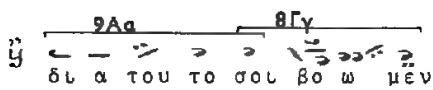
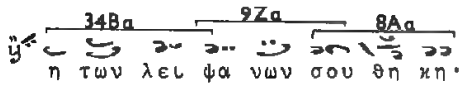
1. Cf. Egon Wellesz, A history of Byzantine Music and Hymnography (2), Oxford 1961, p.327.
2. For these terms, see below pp. 16-17
3. The cadences are treated in a more detailed way on pp.60f.

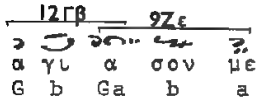
Thus:

a) 

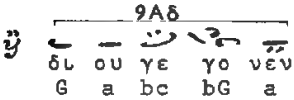
3,14.

b) 

13,1.

c) 

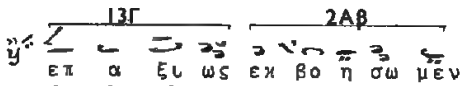
57,5.

d) 

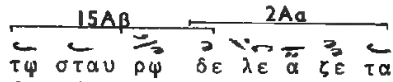
54,3.

As will be seen from the above examples formula No. 9 may be opening (case a), medial (case b), cadential (case c) or opening and cadential at the same time (case d).

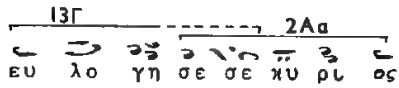
According to the ways in which two formulas are connected they may be either conjunct when some part of the one forms a part of the other, or disjunct when there is no shared element. Thus:

a) 

29,15.

b) 

54,7.

c) 

18,7.

In case (a) the two formulas 13Γ and 2Aβ are disjunct.

In case (b) the note a, corresponding to the syllable δε(λεάζεται), is shared by the two formulas 15Aβ and 2Aα which thus become conjunct.

The above examples demonstrate why it is not possible to divide the formulas into the two categories of conjunct and

disjunct, as one and the same formula may be alternatively conjunct and disjunct depending on the type of formula with which it is connected.

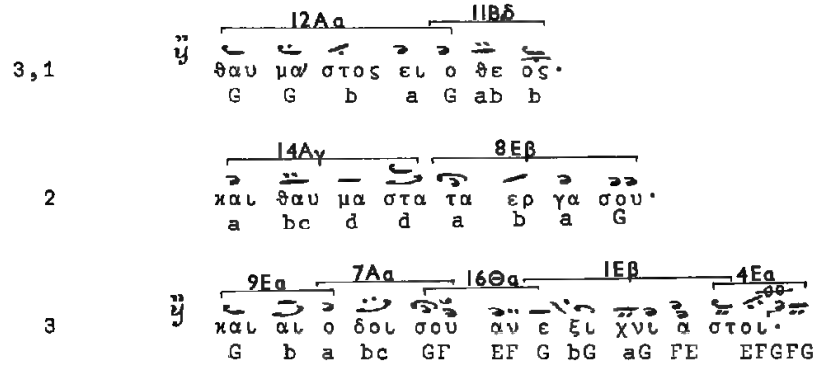
In dividing the melodies into formulas two factors must be taken into consideration, viz. the text and the melody. This fact is often the cause of grave difficulties. Thus in case (a) the division of the melodic line into two formulas (13Γ and (2Aβ) is easily effected as the division will coincide with a word boundary in the text, viz. "ἐπαξίως // ἐκβοήσωμεν"

But in case (b) the division of the musical line into two formulas is more difficult as the division in the text,"τῷ σταυρῷ// δελεάζεται" does not coincide completely with the melodic division, since formula 15Aβ extends until the first syllable of the second word, and this syllable thus constitutes a musical sound shared by the two formulas. And in case (c) the division becomes very difficult indeed. The text allows either of two divisions:"

"εὐλόγησέ σε // κύριος" or "εὐλόγησέ // σε κύριος";

but the melody indicates the syllable (εὐλο) <u>γη</u> as the point of division because that is where formula 13Γ ends. In such cases where a complete correspondence is lacking between textual and melodic divisions we have for practical reasons preferred to follow the division indicated by the melody.

One, two or more interconnected formulas make up a <u>unit</u>.
One, two or more units taken together make up a <u>colon</u>.
One, two or more colons make up a <u>section</u>.



In the above example the first line which consists of two conjunct formulas makes up a unit. Similarly the second line, which consists of two disjunct formulas, makes up a unit. Taken together the two lines make up a colon. The third line, which consists of five conjunct formulas, also makes up a unit, which in this case may be considered as constituting a colon[1]. The two colons together make up a section.

Unit, colon and section all begin with a characteristic opening formula and end with a characteristic cadential or leading-on cadential formula.

The units and the colons have been named from their cadences, whether they be real cadences or leading-on cadences. Thus, a colon on E is one which ends with a cadence on E or a leading-on cadence on E^D,E^F or E^G . In general, we find units ending on D,E,G,a,b,d and colons on D,E,G,b but sections only on E, in all three modes.

1. In some cases a single unit constitutes a colon and a single colon will in some cases constitute a section.

DESCRIPTION OF THE FORMULAS

The segmentation of the melodies produced 72 different formulas occurring with varying frequencies ranging from 1 (20 formulas) to 245.

The description of each formula contains the following information:

a) the kind of formula it is (opening, cadential, medial, connective)
b) the position it occupies in the melody (e.g. at the beginning of a melody, section, colon, or unit).
c) the kind of cadence it forms (on E, on G, on b and so on).
d) the signatures if any (, ,) that precede or follow it.
e) the musical punctuation if any, that follows (dot, comma)[1]
f) the grammatical punctuation (dot, high point, comma)[2].

Further explanations are only given when special circumstances make them absolutely necessary.

1. The signatures and the musical punctuation were found to have an intimate connection with the segmentation of the melodies into sections, colons and units, and so it was considered advisable to provide the relevant information.
2. The musical manuscript does not contain any grammatical punctuation. It was taken from the edition Μηναῖα τοῦ ὅλου ἐνιαυτοῦ, Τόμος Α΄(Σεπτέμβριος-Ὀκτώβριος), Rome 1888. Information about the grammatical punctuation has been given in order to show its relation to the musical punctuation.

Formula No. 1

178 cases. Distribution:

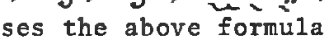
A. Cadential. 176 cases (+2 cases mentioned sub B).

B. Opening and cadential. 2 cases.

Details:

A.a At the end of melodies or of sections of melodies at such points where the text carries a full stop, a high point(·) or a comma[1].

A.b In 38 out of 178 cases it is combined with such formulas as 4Eα,10(Aα,Bα,Bβ,Γα,Γβ) and 32A (which can be considered as substitutes for MeInt) and form leading-on cadences.

A.c In the cases in which it is neither at the end of a melody nor forms a leading-on cadence[2] it is followed by a MeSi viz.  .

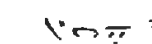
A.d In all cases the above formula is also followed by a dot.

A.e It is a characteristic cadential formula on E in all three modes.

B.a At the beginning of the last unit of an E colon (79,22).

B.b At the beginning of a section preceded by a leading-on cadence on E^F (84,14).

Formula No. 2



102 cases. Distribution:

A. Opening	3 cases	(+10 cases mentioned sub C).
B. Cadential	85 cases	(+10 cases mentioned sub C).
C. Opening and cadential	10 cases.	
D. Medial	4 cases.	

Details:

A.a At the beginning of G colons, preceded by a cadence on G+ (68,2), or by a leading-on cadence on E^D (88,12).

1. For further details see pp. 62-63
2. A MeSi after a leading-on cadence is found in only one instance(3,9).

A.b At the beginning of the last unit of G colons (12,7.24,4.57,6.79,6.81,15.90,2.95,10.110,8).

A.c At the beginning of the last unit but one of E colons (72,17.81,12.84,8).

B.a Cadences on G in all three modes (87 cases). There always follow both a dot and a MeSi, viz. ÿ . ÿ´, ÿ˝ with the exception of five cases (12,9.28,7.65,2.104,4.110,9).

B.b In five cases (3,4.92,4.102,19.106,7.106,15) formula 2 is combined with 33A to form a cadential group on G. Both a dot and the MeSi ÿ follow.

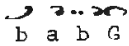
B.c In one case (35,5) it is combined with the formula 17Nγ, the combination becoming a leading-on cadence on E^F. No MeSi follows.

B.d In three cases it is modified at the end and transformed into a leading-on cadence on a (12,4.24,10.36,10). No MeSi follows.

C. 12,7.24,4.57,6.68,2.79,6.81,15.88,12.95,10.110,8.

D. 34,5.38,9.38,10.81,8.

Formula No. 3



50 cases. Distribution:

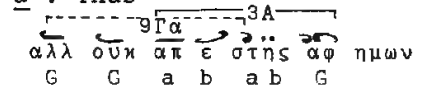
A. Opening 39 cases.

B. Medial 11 cases.

Details:

A.a At the beginning of the last unit of E colons. There is no preceding MeSi (3,11.12,5.13,3.13,6.24,11..in all 36 cases).

A.b At the beginning of one-line colons preceded by a cadence on G +MeSi ÿ (12,8.21,3.111,9). Formula 3 then begins on G instead of a . Thus



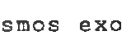
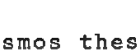
Here it might be considered a conjunct group of two formulas, viz.9Γα+3A.

B. 11,13/14.16,6.29,12/13.38,5/6.48,10.84,22.95,15/16.97,15.103,2.103,18.111,1/2.

Formula 3 is invariably followed either by the cadential formula No. 1 or by the cadential group 16+1.

Formula No. 4

The number 4 has been assigned to all the various types of thematismoi (θεματισμοί), viz.

1) Thematismos exo	 D G a d c b	4A(α-β-γ-δ-ε)
2) Thematismos eso	D G a c b a	4B(α-β-γ-δ)
	G a b d c b	4Γ(α-β-γ)
	c d f e d	4Δ(α-β)
3) Thematismos thes-kai-apothes	E FG F G	4E(α-β-γ)
	 b cd c d	4Z

For further details see pp. 75-76.

Formula No. 5

E G F Ga FE D

38 cases. Distribution:

A. Opening	1 case	(+15 cases mentioned sub D).
B. Medial	1 case	
C. Cadential	20 cases	(+15 cases mentioned sub D).
D. Opening and cadential	15 cases	

Details:

A.a At the beginning of sections which are preceded by cadences on E+MeSi (16,7.38,7.51,11.64,12.*90,7.92,10.106,10.111,10.).

A.b At the beginning of sections or colons which are preceded by a leading-on cadence on E^D. In these cases formula 5 is joined to formula 57, the combination 57+5 becoming an opening group (21,8.22,2.69,3.*78,5). The opening group 57+5 is also found at the beginning of a melody (69,1) in which case it is preceded by the MSi .

A.c At the beginning of units which are preceded by cadences on E. There is no preceding MeSi (23,2.111,3).

* The asterisk indicates that there is a variant written in red ink above the regular formula. These variants are included in the number of occurrences.

B. 65,4.

C.a At the end of D colons, followed by a dot and the MeSi (18,3.55,4.84,3.84,17.88,20)

C.b At the end of D colons, followed by a dot but not by a MeSi (23,2.23,9.44,17.68,4.78,10.83,4.90,11). The reason is probably that there is a textual enjambement.

C.c At the end of the last unit but one of E or G colons. Neither a dot or a MeSi follows (21,8.22,2.48,12* 51,11. 56,12* 64,12* 69,1.69,3* 72,12* 78,5.90,7.92,10.111,10.-21,1.16,7.38,7),except in three cases (21,1.72,12*)where a dot follows.

C.d In one case it is combined with formula 10Aγ to form a leading-on cadence on E^F (106,10).

C.e In one case (68,15) its final is transformed so as to end on E instead of D.

D. 16,7.21,8.22,2.38,7.51,11.64,12* 69,3* 78,5.90,7.92,10. 69,1.106,10.111,10.23,2.

This formula occurs 8 times in melodies of the Deuteros mode, 21 times in melodies of the Plagal Deuteros mode and 9 times in melodies of the Nenano mode. These figures demonstrate that it is especially appropriate to the plagal Deuteros mode. The same formula is furthermore encountered in melodies of the Plagal Protos and Plagal Tetartos modes (M.M. B.Tr.I.Sept.1,8.1,12.1,15.8,2.8,5.15,13.26,17.52,5.52,9.62,7. -10,5). Whether formula 5 is common to the modes named is a question that can hardly be settled at present, as the problem of the chromatic modes remains unsolved.

Formula No. 6

E FE D

60 cases. Distribution:

A. Opening 19 cases

B. Medial 10 cases

C. Cadential 31 cases

Details:

A.a At the beginning of sections or of E colons. A cadence on E+MeSi precedes (28,11.33,6.49,8.64,10.66,2.69,10. 69,12). There are only two instances (28,6.69,12) without

any preceding MeSi.

A.b At the beginning of the last unit or the last unit but one of E or G colons, after cadences on E,D,Ga. No MeSi precedes (21,13.48,4.48,10.49,17.50,2.50,5.79,3.84,6.84,11.88,6 91,9).

B. 14,5.36,1.49,10.49,11.50,8.64,4.64,9.79,5.102,32

C.a At the end of the last unit but one of E or G colons. In these cases there is no following musical dot nor MeSi if there is a textual enjambement (21,17.27,10.33,5.34,9.37,2. 37,16.49,13.72,8.95,7.95,14.102,27.103,7.106,4.111,4.-72,5. 79,13). But when there is no enjambement a dot follows (97, 11.103,17.–67,6). There is only one exception to the above rule, viz. 11,6, where a dot follows in spite of an enjambement.

C.b At the end of D colons. Both dot and the MeSi follow (56,9.56,17.91,14.103,12.106,14).

In 5 cases formula 6 is not followed by any MeSi although it is at the end of D colons (17,8.37,15.54,9.84,24.88,13). The reason is probably that there is a textual enjambement.

Formula 6 occurs 17 times in melodies of the Deuteros mode, 38 times in melodies of the Plagal Deuteros mode and 5 times in melodies of the Nenano mode.

The same formula is also encountered in melodies of the Protos and Plagal Protos modes (M.M.B.Tr.I.Sept.1,13.2,11. 2,12.15,9.15,10.41,9.41,12.47,4.99,10.etc.)

Formula No. 7

a bc G

168 cases. Distribution:

A. Opening 89 cases

B. Connective 12 cases

C. Medial 67 cases

Details:

A.a At the beginning of melodies. Preceded by (16,1.88,1. 110,1) or (28,1).

A.B At the beginning of sections. In these cases it is the MeSi that is used if it is preceded by a cadence on E

(14,3.18,10.35,8.35,13.72,14), whereas it is the MeSi if it is preceded by a cadence on E^a(36,4.49,10.65,6.68,14 81,11). There is only one instance where a MeSi is lacking under such circumstances(37,4).

A.c At the beginning of a colon which has a cadence on G before it. A MeSi precedes, either ϔ´(35,10.51,6) or ϔ (21,17.50,8.106,14).

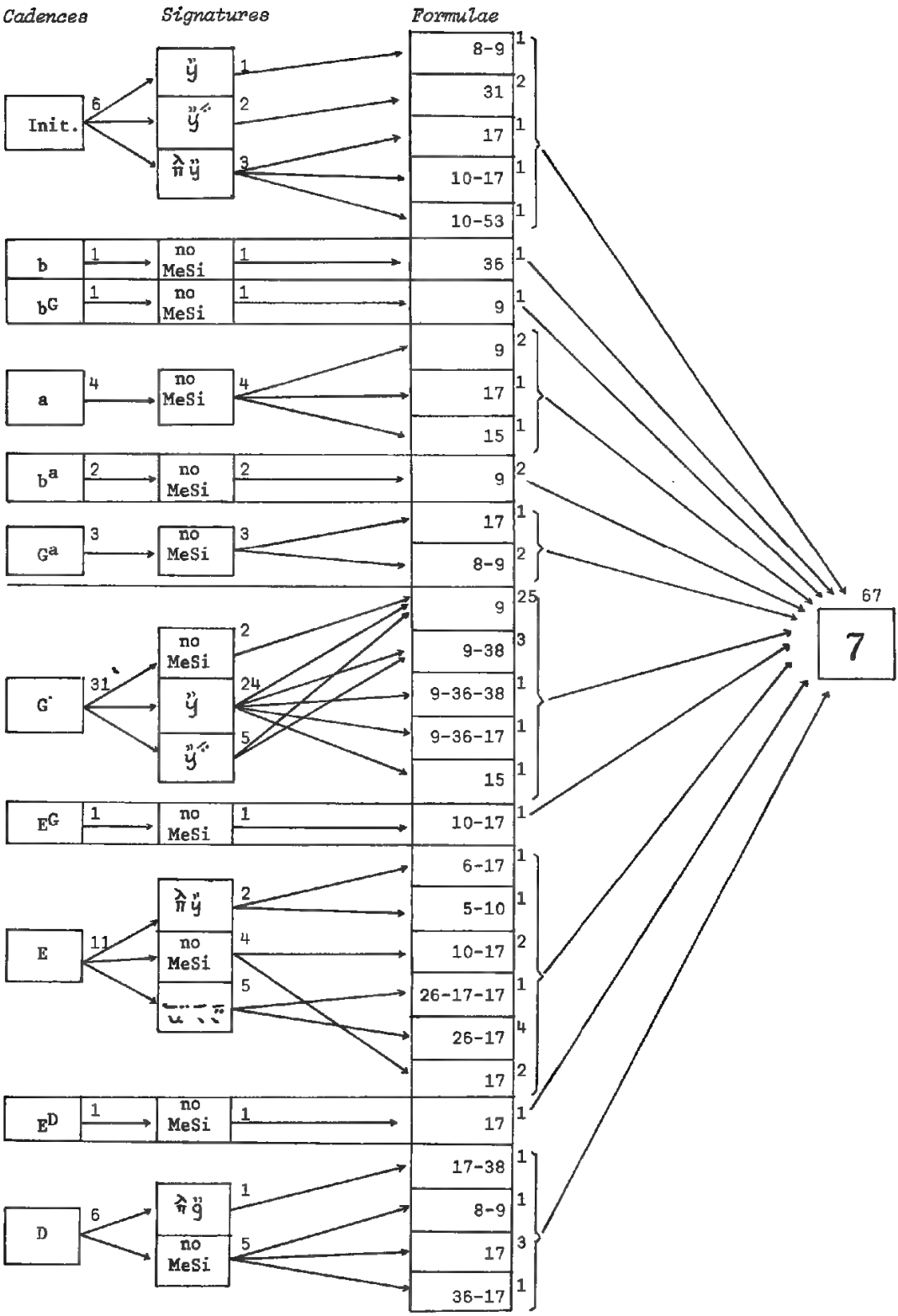
A.d At the beginning of a unit which is preceded either by a cadence on D or a or by a leading-on cadence on D^a,G^a or a. There is no preceding MeSi(48,13.37,17.–17,8.54,11. 81,6.–72,9.103,8.–12,12.–56,17.72,18....in all 65 cases).

B. Between the last but one and the last unit of E colons. In these cases it is divided into two parts the first of which is combined with the formula preceding it to form a leading-on cadence on G^a while the second part is combined with the formula that follows to form an opening group(3,7/8.16,9/10.22,10/11.24,20/21.27,9/10.44,16/17.44, 18/19.84,12/13.92,12/13.95,2/3.106,16/17.111,10/11).

C. In these cases it is preceded by one or more formulas the number and kind of which depend on the preceding cadence (3,3.4,9.11,2.18,9.21,12.28,8.66,11....in all 67 cases). The figure on the next page may convey some idea of the combination in question.

Formula No 7 is followed by such formulas as, e.g.16(151 cases) 10(Δ α,Zβ,Zγ,Zδ,Zε)(15 cases), 6Δα(1case), 11Γϑ(1case), 53Aβ(1 case).

This is one of the most characteristic and most frequent formula of all three modes.


Cadences
Signatures
Formulae
Init.
6
1
2
3
8-9
31
17
10-17
10-53
b
1
no MeSi
36
bG
9
a
4
9
17
15
ba
2
9
Ga
3
17
8-9
G·
31
24
5
9
9-38
9-36-38
9-36-17
15
EG
10-17
E
11
6-17
5-10
10-17
26-17-17
26-17
17
ED
17
D
6
17-38
8-9
17
36-17
67
7

Formula No. 8

112 cases. Distribution: a ba G

A. Opening 15 cases
B. Medial 8 cases
C. Cadential 85 cases
D. Connective 4 cases

Details:

A.a At the beginning of melodies of the Deuteros Mode. Preceded by the MSi (11,1.14,1.17,1.24,1.55,1.81,1.102,1).

A.b At the beginning of sections. Preceded by the MeSi (54,12) or (83,3).

A.c At the beginning of the last or the last but one unit of E or G colons. No preceding MeSi (12,11.13,10.17,9.29,7 29,12.91,4).

B. 22,9.38,10.44,2/3.81,16.84,16.95,6.102,11.102,12.

C.a Cadences on G.(3,6.11,5.13,1.13,8.14,10.22,8...in all 34 cases). A musical dot follows (except in three instances, viz. 84,21.91,20.111,8).and also a MeSi viz. or (except in four instances, viz. 9,3.24,18.84,21.103,9).

C.b In four cases the formulas 8 and 33A are combined to form a cadential group on G. A musical dot and a MeSi, viz. or , follow (21,11.34,13.35,9.95,12).

C.c Leading-on cadences on G^a. This result is obtained by adding a tail at the end, as, e.g. G a a, G ab a, G a a, G a a, G a (29,6.34,14.–3,10.3,14.–37,10.–21,6.78,15.–24,20.84,12...in all 40 cases.

C.d Leading-on cadences on G obtained by the combination 8+24 (Aγ,Aδ,Bα). (16,2.78,9.91,3.91,19.97,7).

C.e Leading-on cadences on G^b obtained by the combination 8+11 (Γβ,Γγ) (14,9.54,2).

C.f In cases c.d.e no MeSi follows.

D. As a connective formula it forms leading-on cadences on a in 4 cases (22,9.56,22.81,15.95,11).

Formula No. 9

184 cases. Distribution: G a bc b a

A. Opening 145 cases (+5 cases mentioned sub D)
B. Medial 17 cases
C. Cadential 17 cases (+5 cases mentioned sub D)
D. Opening and Cadential 5 cases

Details:

A.a At the beginning of E colons when preceded by:
1) a cadence on G+the MeSi or (3,5.3,7.13,9.36,6.68,8. in all 88 cases. In 9 cases, however,no MeSi precedes: (9,4.12;10.28,8.29,6.65,3.84,26.95,6.104,5.110,10).
2) a cadence on E+MeSi (69,8) or (69,6).
3) a cadence on D+MeSi (72,2);no MeSi(34,2).

A.b At the beginning of G colons. Preceded by a cadence on G+ MeSi or (14,9.44,8.19,19.104,2.in all 19 cases. In one case, however, there is no preceding MeSi (110,9).

A.c At the beginning of D colons. Preceded by a cadence on G+ MeSi or (37,13.54,8.56,8.56,16.78,9.84,16.91,4).

A.d At the beginning of a b colon. Preceded by cadence on G+ MeSi (22,6).

A.e At the beginning of G,E or D colons which are preceded by a leading-on cadence. In such cases no preceding MeSi occurs (29,4.37,10.51,4.54,25.56,7.–84,15.–4,3.54,16.54,21. 66,5.67,2.90,6.95,2.102,26.–55,3).

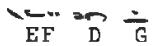
A.f At the beginning of the last or the last but one unit of E or G colons. No MeSi precedes (27,3.66,11.–37,12.91,20... in all 15 cases.

B. 17,9.29,7.68,12.79,5.91,7.92,7...in all 17 cases).

C. At the end of the last unit but one of E colons (4,10.24, 15.38,2... in all 15 cases), of a G colon (57,5), of a D colon (102,12).

D. 14,11.27,9.54,3.55,14.56,22

Formula No. 10



150 cases. Distribution:

A. Opening 65 cases
B. Medial 32 cases
C. Cadential 2 cases (+51 cases mentioned sub D)
D. Connective 51 cases

Details:

A.a At the beginning of melodies of the Deuteros mode. Preceded by the MSi ȳ (27,1.29,1.44,1.103,1).

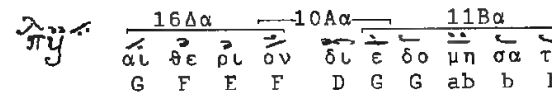
A.b At the beginning of melodies of the Plagal Deuteros mode. Preceded by the MSi π̂ȳ or π̂ȳ< or π̂ȳ> (22,1.23,1.33,1.36,1.37, 1.38,1.65,1.66,1.78,1.95,1).

A.c At the beginning of sections. Preceded by the MeSi π̂ȳ or π̂ȳ< (12,6.13,4.24,7.24,12.34,4.38,3.48,11.54,5.54,19.67,4. 97,13. In only one case,viz. 49,15,there is no preceding MeSi.

A.d At the beginning of sections, colons or units. Preceded by the thematismos thes-kai-apothes, i.e. formula No. 4E (α,β,γ).(3,4.4,7.11,11.17,6...in all 28 cases).

A.e At the beginning of colons or units. No MeSi precedes. (23,10.33,2.33,3.64,6 in all 11 cases).

B. 9,8.11,8.14,3.14,7.16,1.18,10...in all 32 cases. In these cases formula 10 could be considered connective and we could divide the verse into two units as follows:



In the above example it would be possible to divide the verse into two units with a leading-on cadence E^F at the end of the first unit. However, I have avoided doing so as this would destroy the coherence of the text.

C.a Cadence on D (22,11) or leading-on cadence on D^a (102,9) at the end of the last unit but one of E colons.

C.b Here one ought to include also the cases where the formula is connective and forms leading-on cadences on E,E^D,E^F.

D.a Between two sections the first of which has a termination of one of the following kinds:1 [A(β,γ,ε),Bγ,Γ(ζ,δ),Δ(δ,ζ), E(β,ε,ζ),Zγ],16(α,δ),44(α,β).
In these cases the connective formula No. 10 is divided into two parts the first of which is combined with the end of the preceding section to form a leading-on cadence on E^F or on E^D, whereas the second is combined with the beginning of the following section to form an opening group together with its opening formula.

In all these cases there is a musical dot between the two sections,but there is never -save for one instance (3,8/9)- any MeSi. (3,5/6.3,8/9.3,11/12.16,3/4.17,2/3.21,9/10... in all 33 cases.

D.b Between two units or colons, normally at the beginning of a section, the first unit having a cadence of one of the following kinds:1(Δη,Εε,Ηβ). 5Γγ,7(Αδ,Γ).10Εγ,16(Δδ,Ζγ,Λα, Μδ,Ξδ),27Β,28,52Αδ. In these cases a leading-on cadence (E,E^D,E^F) results at the end of the first unit and an opening group is formed at the beginning of the second. If the text carries a grammatical comma between the two units, or if, at least they can be separated without doing violence to the sense, then a musical dot is put between the two units. Otherwise there is none. (51,3/4. 55,2/3.56,6/7.– 12,6/7.27,3/4.35,1/2...in all 18 cases).

Formula No. 11

58 cases. Distribution: G ab b

A.	Opening	14 cases(+4 cases mentioned sub D)
B.	Medial	7 cases
C.	Cadential	34 cases(+4 cases mentioned sub D)
D.	Opening and cadential	4 cases

Details:

A.a At the beginning of melodies of the Deuteros mode, preceded by the MSi (4,1.54,1).

A.b At the beginning of colons after cadences on G+MeSi (24,18.27,5.38,9.38,10.44,14.102,12),or cadences on D+MeSi (34,13), or leading-on cadences on E without any MeSi (44,6.102,3)

A.c At the beginning of the last unit of G colons. No preceding MeSi (38,4.38,8).

A.d At the beginning of a section which is connected to the one preceding it by means of a connective formula, viz. 10(Αα,Ββ). In such cases the second part of the connective formula combines with formula 11 to constitute an opening group. There is no preceding MeSi except for one instance

(3,9) in which the MeSi ÿ precedes. (3,6.3,9.17,3.78,13.106,12).

B. 3,13.11,5.17,1.24,1.90,5.102,1.102,11.

C.a Cadence on b. A musical dot and the MeSi ÿ follow (57,1)

C.b Cadences on b. Neither musical dot nor MeSi follow. (3,6.18,6.29,1.97,5...in all 19 cases).

C.c Leading-on cadences:

1) on b (3,1.18,1.38,3....in all 8 cases)
2) on b or b^c by addition of formulas such as 15(Aδ,Bα).24,7.54,12.56,1.92,1.
3) on b^a by addition of formula 30A(11,1)
4) on b^d by addition of formula 4Z (103,3)
5) on G^b when formula 11 is added to formulas such as 7Bγ,8Bα,17Bα,33A, so as to form cadential groups (35,4.54,2.102,29).

C.d In the cases mentioned above sub C.b and C.c formula 11 is found at the end of the first unit of G colons (22 cases,E colons (11cases) and b colons (4 cases) which — save for three cases (14,9.35,4.65,8) — occur at the beginning of sections.

D. 3,6.44,14.78,13.106,12.

Formula No. 12

41 cases. Distribution: G b a G

A. Opening	15 cases(+6 cases mentioned sub D)
B. Medial	15 cases
C. Cadential	5 cases(+6 cases mentioned sub D)
D. Opening and cadential	6 cases

Details:

A.a At the beginning of melodies of the Deuteros mode. Preceded by the MSi ÿ (3,1.12,1.56,1.57,1.92,1).

A.b At the beginning of E or D colons after cadences on G + MeSi ÿ (16,9.29,11.44,16.68,3).

A.c At the beginning of E,G or b colons(3,12.33,11.48,5.66,7.79,5.97,9.110,5) or at the beginning of the last unit but one of E colons (38,2), when a leading-on cadence E^F or E^D formed by means of connective formulas such as 10Aα,

B(α,γ,δ), Γ(α,β) precedes. In these cases the second part of the connective formula combines with 12 to form an opening group.

A.d At the beginning of E or G colons, after leading-on cadences on b, ba, or a (17,11.55,12.–57.5), or at the beginning of the last unit of an E colon, after a leading-on cadence on a (54,22).

B. 4,7.11,11.13,4.14,1.24,7.27,1.24,12...in all 15 cases.

C.a Cadences on G (4,3.55,12.88,18). Neither a musical dot nor a MeSi follow. There is just one case in which a musical dot follows (4,3).

C.b Leading-on cadences on G^a (3,12.12,11.13,10.16,9.17,11.29,11.44,3.44,16). No musical dot follows, nor any MeSi.

D. 3,12.16,9.17,11.29,11.44,16.55,12.

Formula No 13.

55 cases. Distribution: - c dc b

A. Opening	30 cases	(+3 cases mentioned as sub D)
B. Medial	7 cases	
C. Cadential	15 cases	(+3 cases mentioned as sub D)
D. Opening and Cadential	3 cases	

Details:

A.a At the beginning of G,E or b colons after cadences on b+MeSi $\ddot{\pi}\ddot{y}$ or on G+MeSi $\ddot{y}$ on E+MeSi $\ddot{\delta}$ or on D+MeSi $\ddot{y}$ (11,12.18,11.29,10.36,9.55,10.65,7.–106,7.–13,7.–29,15).

A.b At the beginning of G or E colons after cadences on b(16,5.49,3.92,12.104,4.110,6).

A.c At the beginning of the last unit of G or b colons with a preceding cadence on b(11,9.18,7... in all 10 cases) or on G(103,10) or d(17,10) or on E(91,18); Also with preceding leading-on cadence on G^b(54,2), or on b^G(24,2), or on G^a (3,12.55,9.57,4).

A.d At the beginning of the last unit but one of a b colon after a cadence on b(29,2).

B. 16,5.17,10.27,2.28,7.38,4.56,2.102,11.

C.a Cadence on b. Followed by a musical dot and the MeSi $\ddot{\pi}\ddot{y}$ (55,9).

C.b Cadences on b at the end of the last unit but one of G cola (13,7.97,1). In one of the two instances a musical dot follows (97,1).

C.c Leading-on cadences on b (3,12.11,4.55,11.56,3.66,4.68,11.104,2). A musical dot follows except in one instance (66,4).

C.d Leading-on cadences on b^a formed by adding to formula 13 such as 30(A,Bα)(4,2.29,3.37,8.37,9.54,20.54,24.57,4). A musical dot follows except for one instance (54,24).

C.e Leading-on cadence on b formed by the addition of formula 15Aδ(54,14). A musical dot follows.

C.f In the cases falling under C(b,c,d,e) no MeSi ever follows.

D. 3,12.55,9.57,4.

Formula No. 14

26 cases. Distribution: a bc d

A. Opening 15 cases

B. Medial 9 cases

C. Connective 2 cases

Details:

A.a At the beginning of G,E and D colons after cadences on G+ MeSi (11,6.27,7.84,24,106,4).

A.b At the beginning of the last or last but one unit of b,G,E and D colons. No MeSi precededs. (3,2.27,2.27,8.29,3.37,8.37,11.37,15.56,2.56,3.66,4.92,2).

B. 11,4.37,9.54,14.54,20.54,24.55,11.68,11.97,1.104,2.

C. Between two units forming a leading-on cadence on G^a (3,12.55,8/9).

Formula No. 15

69 cases. Distribution: b cb a

A. Opening 37 cases

B. Medial 22 cases

C. Cadential 5 cases (+5 cases mentioned sub D)

D. Connective 5 cases

D Details:

A.a At the beginning of sections. Preceded by a MeSi, either or or (54,24.65,10.–14,7.84,23.–48,9.49,6).

A.b At the beginning of G or D colons preceded by a cadence on b+MeSi (21,11.88,17) or on E+MeSi (65,2.84,2).

A.c At the beginning of an E colon preceded by a leading-on cadence on b(103,2).

A.d At the beginning of b colons preceded by a cadence on b+MeSi (4,2).

A.e At the beginning of E or G or b colons preceded by a cadence on b(44,9.68,11.72,11.84,21.90,9)

A.f At the beginning of the last unit of G,b,D colons. No MeSi precedes. (14,10.21,14.44,15.54,7...in all 14 cases).

A.g At the beginning of the last but one unit of E colons. No MeSi precedes. (35,5.37,5.51,15.102,8.102,17.102,30).

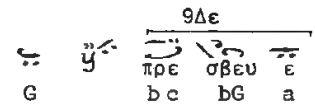
B. 3,9.3,13.4,1.11,5.13,8.14,4.17,1.17,3...in all 22 cases).

C.a Cadences on a at the end of the first or second unit of E colons (12,1.12,2.44,1).

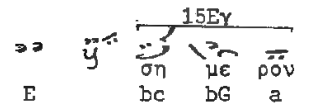
C.b Leading-on cadences on b^G at the end of the first unit of E or G colons (102,1.-24,1).

C.c Leading-on cadences on b or bc in the cases where formula 15 is connective (5 cases).

D. 24,7/8.54,12/13.54,14/15.56,1/2.92,1/2.
The distinction of the various types of formula 15 caused no little difficulty due to its similarity to formula No.9. Thus:

a) 

14,11

b) 

65,2

In the two above examples formula 9Δε and formula 15Eγ are exactly alike. Nevertheless I consider them different for the following reason:

Formula 9 represents the melodic movement G a b c b a which presupposes a preceding cadence on G. When, as in the above example (a), the text of the formula begins with a stressed syllable, the sounds Ga are often omitted and the formula takes the shape of b c b a [see formulas 9Δ(α,β,γ,δ,ε)]. In these

cases the sounds Ga which are omitted are nevertheless understood, both because of the preceding cadence on G and because of the preceding MeSi , when there is one.

Formula 15 represents the melodic movement b c b a which presupposes a preceding cadence on b or some neighbouring sound like a or d for instance, which prepares for the sound b. In cases where a cadence on E precedes (example b) the preparation for the sound b is provided by one of the following MeSi: , ,

My attribution of doubtful instances to formula 9 or 15 was based on considerations such as the above.

Formula No. 16

F GF E, G F E, G F EF G

This formula sometimes ends on E and sometimes on G depending on the following formula or the cadence that it tends to form.

245 cases, Distribution:

A. Opening 32 cases(+2 cases mentioned sub D)
B. Medial 137 cases
C. Cadential 74 cases(+2 cases mentioned sub D)
D. Opening and Cadential 2 cases

Details:

A.a At the beginning of melodies of the Plagal Deuteros mode. The MSi precedes (9,1.48,1).

A.b At the beginning of sections.Unless a leading-on cadence precedes there will be a preceding MeSi, either or (9,3.9,5.11,8.11,8.22,4.23,8.23,8.51,13.56,20.–102,29).

A.c At the beginning of a G colon. A cadence on G+MeSi precedes(35,15).

A.d At the beginning of units after cadences on E or D or a or Ga. No MeSi precedes(12,3.16,3.17,11.23,1.23,4.34,10.51,7.67,3.88,15.102,15).

A.e At the beginning of units as an opening group when preceded by the connective formula No.7(3,8.16,10.24,21.27,10.44,17.44,19.84,13.92,13.95,3.106,17.111,11).

B. 11,2.14,5.23,9.24,16.37,17....in all 137 cases.

C.a Cadences on E:

1) at the end of melodies or sections at points where the text has a full stop, a high point or a comma. A musical dot follows and also one of the following MeSi , , , except for one case in which the formula is found at the end of a melody and is followed by the finis-sign:– (9,4.14,6.22,3.28,10.48,2.48,8.–67,9... in all 19 cases).

2) At the end of prologues. Followed by a musical dot and the MeSi or (65,1.66,1.84,1).

3) At the end of E colons occurring at the beginning of sections. A musical dot and the MeSi or follow(79,19.91,11.111,6).

4) At the end of the last unit or the last but one of E,G or D colons. No MeSi followes. (4,9.21,12.21,15.23,1.28,8...in all 22 cases).

C.b Cadences on G. A musical dot and the MeSi follow(33,7.38,9.51,4).

C.c Leading-on cadences on F^F,E^D or E^G formed by the addition of a formula like $4E(\alpha,\beta),10\left[A\alpha,B(\beta,\gamma,\delta),\Gamma\alpha\right],32A$:

1) At the end of sections at such points where the text has a full stop, a high point or a comma. A musical dot follows(48,4.72,16.78,4.78,12.90,7.102,6.102,18.102,22.106,11).

2) At the end of prologues. A musical dot follows(22,1.28,1.78,2.106,2).

3) At the end of the first unit of G or E colons(17,5.35,10.35,13.51,13.66,6.72,14.81,14). A musical dot follows in one case only(66,6).

C.d Leading on cadence on G^F linked to the end of formula $2A\alpha$. A musical dot follows(35,3).

C.e Cadences on a or leading-on cadence on a or G^a(34,5.34,7.72,12.102,32).

D. 23,1.51,13.

Formula No. 17

185 cases. Distribution:

A. Opening 91 cases

B. Medial 77 cases

C. Cadential 17 cases.

Details:

A.a At the beginning of melodies of the Plagal Deuteros mode ; preceded by the MSi (35,1.49,1.84,1).

A.b At the beginning of sections or colons;preceded by the MeSi (12,4.12,9.24,14...in all 18 cases) except for the instance(11,8), and two cases(95,4 102,19) in which a leading-on cadence precedes.

A.c After cadences on D(9,2.11,7.16,8.21,2.21,9...in all 45 cases). In 11 of these cases the MeSi precedes(9,8.18,4.55,5.56,10.56,18.84,4.84,18.88,21.91,15.102,14.106,15).

A.d At the beginning of the last unit of E colons, after leading-on cadences on a or G^a. No MeSi precedes(21,7.23,11.34,3.49,7...in all 16 cases).

A.e At the beginning of the last unit or of the last but one of E or G colons, after cadences on E. No MeSi precedes (21,16.28,9.37,2...in all 10 cases).

B. 4,6.9,3.9,5.12,6.14,8.21,13.22,1...in all 77 cases.

C. Cadences on a or leading-on cadences on G^a at the end of the last unit but one of E colons(9,8.11,2.14,5.23,10...in all 17 cases).

It is significant that formula 17 is found 55 times in melodies of the deuteros mode, 107 times in melodies of the Plagal Deuteros mode and 23 times in melodies of the Nenano mode. These figures show that the formula fits the melodies of the Plagal Deuteros and Nenano modes best.

Formula No. 18

37 cases. Distribution:

A. Medial 7 cases

B. Cadential 29 cases(+1 case mentioned sub C)

C. Opening and Cadential 1 case

Details:

A. 22,1.37,2.48,3.49,10.64,4.79,3.84,6.

B.a Cadences on G;followed by a musical dot and a MeSi,either or or (9,5.14,8.16,8.21,2.21,13.28,6.33,6.50,5...in all 18 cases). In four of these cases no musical dot fol-

lows(21,13.28,6.33,6.81,3) and in three of them no MeSi follows(21,13.84,21.95,5).

B.b Cadences on G formed by the combination 17+33A(21,16.33,15 56,10.67,7.79,14);followed by a musical dot and the MeSi ȳ ecxept for one case(56,10).

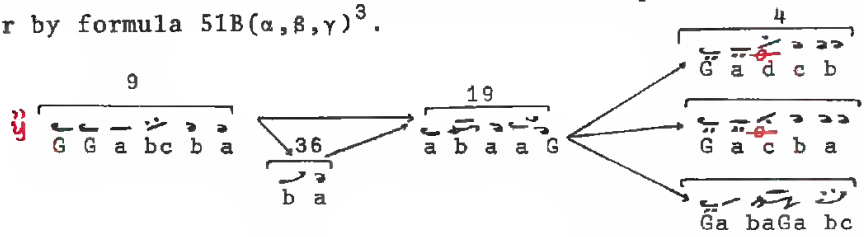
B.c Leading-on cadences on G^a. No MeSi follows(35,11.44,18. 56,18.78,11.72,2.88,14.95,2).

C. At the beginning of the last unit of a G colon(81,3).

No. 18 is a characteristic cadential formula on G. It is found 7 times in melodies of the Deuteros mode, 24 times in melodies of the Plagal Deuteros mode, and 6 times in melodies of the Nenano mode.

Formula No. 19

This formula constitutes the so-called ouranisma(Οὐράνισμα).[1] It occurs 16 times, viz. 12 times in melodies of the Deuteros mode, once in a melody of the Plagal Deuteros mode and 3 times in melodies of the Nenano mode. It is preceded by the opening formula NO. 9 or by the opening group 9+36, and it is followed either by a thematismos,viz formula No. 4 [A(δ,ε), B(β,γ,δ)][2], or by formula 51B(α,ß,γ)[3].



The ouranisma is also found in melodies of the Protos mode. It then has the following form:[4]

Further it is met with in melodies of the Plagal Protos mode, but then in transposition to the low D[5].

1. Details about the ouranisma will be found in:Constantin Floros,Universale Neumenkunde,Vol.1,pp.263ff.
2. 12,10.13,9.44,8.54,8.54,16.56,8.56,16.68,8.68,17.81,9.88,22.103,16,104,3.
3. 29,16.37,14.54,21.
4. MMB.Tr.I.Sept.No.41,2.43,2.—41,6.62,6.74,20.101,11.
5. Id.No.47,2.62,1.

Formula NO. 20

6 cases. Distribution:
A. Opening 4 cases
B. Medial 1 case
C. Cadential 1 case

Details

A. At the beginning of the last or last but one unit of E colons after cadences on E^a or leading-on cadences on D^a (4,10.90,12.95,15.103,18)

B. 54,1.

C. Cadence on G. Followed by a musical dot and the MeSi (92,7).

Formula No. 21

7 cases. Distribution:
A. Opening 3 cases
B. Medial 4 cases

Details:

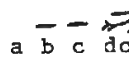
A.a At the beginning of a section. The MeSi precedes (67,6).

A.b After cadences on D. Not preceded by any MeSi (37,16.72,5)

B. 9,6.34,8.34,9.95,14.

Formula 21 is in all cases followed by formula 16Hα. It is found in melodies of the Plagal Deuteros mode (6 cases and once in a melody of the Nenano mode.

Formula No. 22



5 cases. Distribution:
A. Opening 4 cases
B. Cadential 1 case

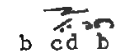
Details:

A.a At the beginning of the last unit but one of E colons, after cadences on a or leading-on b^c (12,2.24,8.44,2).

A.b At the beginning of a section. Preceded by the MeSi (68,7).

B. At the end of the last unit but one of a G colon (103,4).

Formula NO.23



8 cases. Distribution:

A. Opening 8 cases

Details:

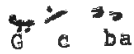
A.a At the beginning of G colons. Preceded by a cadence on G+MeSi (28,7.81,4) or by a cadence on b+MeSi (22,8).

A.b At the beginning of the last unit of G colons. A cadence on b precedes. (13,8.14,4.78,14).

A.c At the beginning of b colons. Preceded by a cadence on b+MeSi or (55,10.57,2).

Formula No. 23 is fifth-transposition of formula No.25.

Formula No. 24



13 cases. Distribution:

A. Opening 3 cases

B. Medial 3 cases

C. Cadential 7 cases

Details:

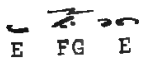
A. At the beginning of a G colon (24,19) or at the beginning of the last unit of a G colon (27,4.35,18).

B. 28,3.36,5.55,13.

C.a Leading-on cadences on Ga attached to the end of such formulas as 8(Bα,Eβ),17Aβ,at the end of the first unit of E or G colons (16,2.66,12.78,9.91,3.91,19.97,7).

C.d Leading-on cadence on a formed by the addition of the connective formula 8Δβ(81,16)

Formula No. 25



5 cases. Distribution:

A. Opening 5 cases

Details:

A.a At the beginning of melodies of the Plagal Deuteros mode.

Preceded by the MSi (50,1.51,1.79,1.83,1):

A.b At the beginning of the last unit but one of an E colon, after a cadence on E. No preceding MeSi (49,13).

The reason why formula 25 is exclusively found in melodies of the Plagal Deuteros mode is that it is a contracted variant of the intonation peculiar to this mode, viz.

The fifth-transposition of formula No.25 is formula No.23

Formula No. 26

a a E

12 cases. Distribution:

A. Opening 12 cases

Details:

A.a At the beginning of sections;preceded by the MeSi (4,6.56,6.56,14.79,19.81,7.111,6.111,7).

A.b At the beginning of G colons after cadences on b+MeSi (14,8.35,3) or after cadence of D+MeSi (34,13)(see p.88).

A.c At the beginning of the last unit of G or E colons;not preceded by any MeSi (88,2.106,5).

Formula No. 27

G a D

13 cases. Distribution:

A. Opening	5 cases(+1 case mentioned sub C)
B. Cadential	6 cases(+1 case mentioned sub C)
C. Opening and Cadential	1 case
D. Medial	1 case

Details:

A.a At the beginning of melodies of the Plagal Deuteros mode; preceded by the MSi (21,1.67,1).

A.b At the beginning of a melody of the Nenano mode;preceded by the MSi (111,1).

A.c At the beginning of the last unit of E or G colons;not preceded by any MeSi(35,16.38,11.88,23).

B. At the end of the first unit at the beginning of melodies of the Plagal Deuteros mode, forming a cadence on D. No MeSi follows. In 3 cases a musical dot follows.(9,1.48,1.79,1.-50,1.51,1.67,1.83,1).

Formula 27 is preceded by formulas such as 25A or 16Δβ with

which it combines to form such opening groups of melodies as 25A-27A(α,β)(50,1.51,1.79,1.83,1), or 16Δβ-27Aα(9,1.48,1)

C. 67,1.

D. 48,2.

Formula No 28.

a FG G

17 cases. Distribution:

A. Opening 9 cases(+1 case mentioned sub C)

B. Medial 7 cases

C. Opening and cadential 1 case

Details:

A.a At the beginning of sections. Preceded by MeSi or except if preceded by a leading-on cadence.(21,4. 23,5.44,5.84,7.91,6.91,17.–51,3).

A.b At the beginning of E colons;preceded by a cadence on G or Ga+MeSi (35,19.49,16).

A.c At the beginning of the last unit but one of a G colon;not preceded by any MeSi(50,4),but by a thematismos on a.

B. 14,7.22,6.48,9.64,6.69,2.79,2.84,23.

C. At the beginning of a G colon(91,6).

Formula No. 29

G a c b

10 cases. Distribution:

A. Medial 2 cases

B. Cadential 8 cases

Details:

A. Combined with formulas 37 and 510 it makes up a characteristic unit at the beginning of sections. Thus 37+29Δ+510 (37,7.79,10).

B.a Cadence on b;followed by a musical dot and the MeSi(4,1).

B.b Leading-on cadences on b:

1) at the end of b colons;followed by a musical dot (18,2. 24,12.103,1).

2) at the end of the first unit of G colons. No musical dot follows(27,1.33,11.48,5).

B. c Leading-on cadence on b^a formed by the addition of formula 30A, at the beginning of the first unit of a G colon (54,1)

Formula No. 30

13 cases. Distribution:

A. Opening 1 case

B. Cadential 12 cases

Details:

A. At the beginning of an E colon, after a leading-on cadence of G^b(65,12).

B. At the end of cadential formulas like 11Bδ,13 [Δ(α,γ)Eβ],29Aα, 55(A,B),12Aα,forming leading-on cadences on ba. A musical dot follows in 8 cases(4,2.11,1.29,3.37,8.37,9.54,20.57,4. 102,25.no dot 13,4.54,1.54,24.90,5). Formula No.30 is fifth-transposition of formula No.32.

Formula No. 31

2 cases. in both it is an opening formula of melodies of the the Deuteros mode;it is preceded by the MSi and followed by formula 7Γ(90,1.91,1).

Formula No. 32

8 cases. It is found in melodies of the Plagal Deuteros mode at the end of cadential formulas such as 1(Bδ,Γα,Δε),16Δγ, 53Γ,28 producing leading-on cadences on E^D(21,7.22,1.35,19. 69,2.78,4.79,8.79,16.79,20). The fifth-transposition of formula No 32 is Formula No 30.

Formula No 33

21 cases. Distribution,

A. Medial 1 case

B. Cadential 19 cases(+1 case mentioned sub C)

C. Connective 1 case

Details:

A. 12,9

B.a Cadences on G. Attached to the end of cadential formulas like 2θ(α,β),6Aβ,8(Δα,Eα,Zβ),14Aα,17Hβ,18(Bα,Γα,Zα) it forms cadential groups on G. (3,4.21,11.21,16.33,15.34,13.35,9.36,1.37,11.56,10.67,7.79,14.92,4.95,12.102,19.106,6.106,7.106,15. A musical dot and a MeSi (or or) follow except for one case (37,11) in which there is no dot and another(56,10) in which there is neither a dot nor a MeSi.

B.b Cadence on G,by addition of formula 50. No musical dot follows, nor any MeSi(27,7).

B.c Leading-on cadence on C^{b},by addition of formula 11Γζ;not followed by any musical dot, nor by any MeSi(35,4).

B.d Leading-on cadence E^{GF} attached to the end of formula 1Γε as a connective formula;followed by a musical dot, but not by any MeSi(102,28/29).

C. 102,28/29.

Formula No.34

35 cases. Distribution: b a G

A. Opening	13 cases(+1 cases mentioned sub D)
B. Medial	4 cases
C, Cadential	17 cases(+1 case mentioned sub D)
D. Opening and Cadential	1 case

Details:

A.a At the beginning of melodies of the Deuteros mode;preceded by the MSi (13,1.104,1).

A.b At the beginning of sections, after cadences on F or E^{b}; preceded by the MeSi (55,8.90,5.102,11).

A.c At the beginning of G,E or D colons after leading-on cadences on b or b^{c};not preceded by MeSi(3,13.11,5.18,3.24,13.29,17.56,4.68,12.104,3).

A.d At the beginning of the last unit of a G colon, after a cadence on b(22,5).

B. 17,10.18,8.37,12.110,9.

C.a Cadences on a at the end of the first unit of E or G colons(17,7.22,10.24,3.81,5.84,26).

C.b Leading-on cadences on Ga at the end of the last unit but

one of D,E,G, or b colons(29,2.33,16.35,17.50,6.55,3.55,6.55,8.56,2.57,3.67,2.88,3.110,7).

C.c A leading-on cadence on b (17,10).

C.d In the cases listed sub C.a and C.b no musical dot follows nor any MeSi, except for one instance(56,2) of a musical dot and one (22,10) of a musical comma.

D. 55,8.

Formula No. 35

2 cases. Cadential on G:

a) at the end of a G colon;followed by a musical dot and the MeSi (27,8);

b) At the end of the last but one unit of a G colon. No musical dot follows, nor any MeSi(35,15).

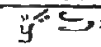
Formula No. 36

7 cases. Distribution:

A. Opening 3 cases at the beginning of the last unit of E colons, preceded by a cadence on b,a or D(14,2.22,3.55,2).

B. Medial 4 cases(12,10.13,9.92,3.92,8).

Formula No. 37



4 cases in all of which it is opening.

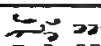
a) at the beginning of melodies of the Deuteros mode;preceded by the MSi (18,1,97,1);

b) at the beginning of sections;preceded by a cadence of E^{b}+ MeSi (37,7.79,10).

Formula No. 38

5 cases in all of which it is medial. (18,4.92,5.92,8.97,11.110,10).

Formula No.39

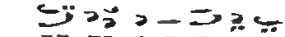


Opening and cadential. 5 cases.

A. Opening:a) At the beginning of melodies of the Plagal Deuteros mode;preceded by the MSi (64,1.106,1).b) At the beginning of sections;preceded by the MeSi (64,3.64,5). c) At the beginning of the last but one unit of an E colon;not preceded by any MeSi(51,8).

B. Cadential:Cadences on E:not followed by any musical dot, not by any MeSi. There are only two instances of a musical dot (51,8.106,1). Formula No. 39 looks like a combination of the formulas 34Δα and 11Γ(γ,ι)transposed down a fifth.

Formula No. 40



Opening and Cadential:2 cases.

A. Opening. At the beginning of the last unit of E colons; not preceded by any MeSi(64,2.64,7).

B. Cadential. a) cadence on E;followed by a musical dot and the MeSi (64,2).

b) Leading-on cadence on E^F,by addition of formula 10Bα;followed by a musical dot(64,7).

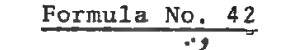
Formula No. 41.

Opening and Cadential. 1 case(33,9).

A. Opening: In the last but one unit of an E colon. Not preceded by any MeSi.

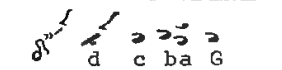
B. Cadential: Cadence on D. Not followed by any musical dot, nor by any MeSi.

Formula No. 42



2 cases, one in which it is opening after a cadence on E (33,5) and another in which it is cadential on E(51,7).

Formula No. 43



This formula is only found once(92,7). It is opening at the beginning of a section and is preceded by the MeSi .

Formula No. 44

DEF E

6 cases, in all of which it is cadential, forming

a) cadences on E at the end of a section(49,11.64,4.64,9.84,6); in these cases it is followed by a musical dot and the MeSi ;

b) a leading-on cadence E^{D} at the end of a section,being combined with formula 10Γα(79,4);

c) a cadence on E at the end of the first unit of an E colon (48,3);in this case it is neither followed by a musical dot nor by any MeSi.

Formula No. 45

b cde d

2 cases in the first of which(17,10) it functions as an opening and cadential formula on d at the same time, being found at the beginning of a section and with a preceding MeSi . In the second case(97,9) it is a cadential formula on d and found at the end of the first unit at the beginning of a section.

Formula No. 46

d a b a

2 cases, one in which it is medial(27,5) and another in which it is opening after a cadence on b(97,2).

Formula No. 47

b aG a

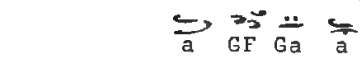
1 case only. Cadential on a.(27,2).

Formula No. 48

G aE F DE E

1 case only. Cadential on E at the end of a section(28.5).

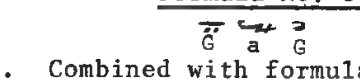
Formula No. 49



8 cases in all of which it is cadential, forming leading-on cadences on a(36,2.49,6.69,6.69,8.69,10.69,12.81,12.84,8).

In all cases but one (81,12) it is found in melodies of the Plagal Deuteros mode.

Formula No. 50

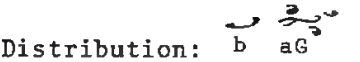


1 case only. Combined with formula 33A it forms a cadential group on G(27,7).

Formula No. 51

The number 51 has been assigned to all the various types of melismata which receive a more detailed treatment on pp.74-75.

Formula No. 52



35 cases. Distribution:

A. Opening 20 cases

B. Medial 15 cases

Details:

A.a At the beginning of sections;preceded by the MeSi or (17,5.33,4.84,10.88,5.91,11.95,9.102,16).

A.b At the beginning of D or E colons;preceded by a cadence on G+MeSi or (9,6.48,12.67,8.72,12.72,16.88,7.88,10.88,13.88,20),or at the beginning of a G colon preceded by a cadence on E+MeSi (91,12).

A.c At the beginning of the last unit of E colons;not preceded by any MeSi(54,4.79,8.79,16).

B. 14,2.24,8.27,8.29.17...in all 15 cases.

Formula No. 53

1 17 cases. Distribution:

A. Opening 6 cases

B. Medial 9 cases

C. Cadential 2 cases

Details:

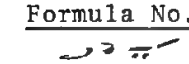
A.a At the beginning of sections or colons;preceded by a cadence on F+MeSi (102,32), or a cadence on G+ (69,16) or a leading-on cadence on E^F or ba without any MeSi(37,9. 106,3).

A.b At the beginning of a unit;preceded by a cadence on a or a leading-on cadence on Ga, but not by any MeSi(69,15.50,7).

B. 11,13.24,10.24,14.36,1.65,1.68,14.72,15.79,16.91,13.

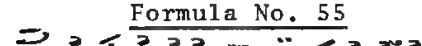
C. Cadences on a (69,14.69,16).

Formula No. 54



This formula has only a single occurrence. It is simultaneously opening and cadential on d and preceded by the MeSi (66,4).

Formula No. 55



3 cases, Distribution:

A. Cadential 1 case(+2 cases mentioned sub B)

B. Opening and Cadential 2 cases

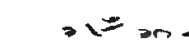
Details:

A. In two of the cases formula 30A is added to it to form a leading-on cadence b^a(90,5.102,25). In the third case it is combined with the connective formula 56 to form a leading-on cadence on b^c (102,24).

B.a At the beginning of a b colon;preceded by the MeSi (102,24).

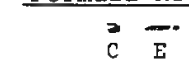
b At the beginning of the last unit of a b colon;preceded by a cadence on b^c (102,25).

Formula No.56



Only one occurrence(102,24/25). It is connective,forming a leading-on cadence b^c. It may be viewed as formula 10Aα transposed a fifth higher.

Formula No.57

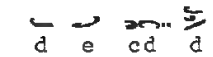


5 cases in all of which it is opening:

a) at the beginning of a melody of the Plagal Deuteros mode; preceded by the MSi (69,1).

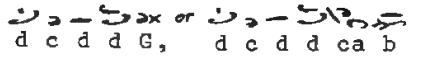
b) after leading-on cadences E^D (21,8.22,2.69,3.78,5). In all five cases this formula is followed by formula No. 5

Formula No. 58



One occurence only. Cadential on b.(54,6).

Formula No. 59



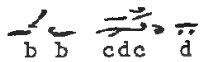
2 cases.

A. Opening. 2 cases:1) at the beginningof a b colon; no MeSi precedes (54,15).

2) at the beginning of the last but one unit of a colon;no MeSi precedes(54,13).

B.Opening and Cadential. 1 case:Leading-on cadence on b(54,15).

Formula No. 60

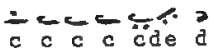


1 case only(66,9). Opening, at the beginning of a section preceded by the MeSi .

Formula No. 61

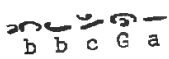
1 case only (69,4);Opening after a cadence on D at the beginning of the last unit of an E colon.

Formula No. 62



1 case only (79.11);Opening preceded by the MeSi at the beginning of a G colon.

Formula No. 63



1 case only (79,12). Opening, at the beginning of the last unit of a G colon.

Formula No. 64

1 case only(79,9). Opening, after a leading-on cadence on b^a at the beginning of an E colon.

Formula No. 65

2 cases;
Opening, after leading-on cadences on E^D, at the beginning of an E colon(79,17), or at the beginning of the last unit of an E colon(35,20).

Formula No. 66

1 case only(79,21). Opening after a leading-on cadence on E^D,at the beginning of the last but one unit of an E colon.

Formula No.67

1 case only (83,5). Opening,after a cadence on D, at the beginning of an E colon. No MeSi precedes.

Formula No.68

1 case only (51,8). Opening, after a cadence on E, at the beginning of the last unit of a G colon.

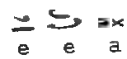
Formula No. 69

1 case only (103,9). Opening, at the beginning of a section preceded by the MeSi .

Formula No. 70

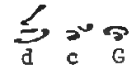
1 case only (55,10). Medial.

Formula No. 71



1 case only (55,11). Opening, after a cadence on d, at the beginning of the last unit of a b colon. It may be considered a fifth-transposition of Formula No. 27Γ.

Formula No. 72



1 case only (11,4). Opening,at the beginning of a section; preceded by the MeSi .

TABLE OF THE FORMULAS
WITH THE NUMBER OF THEIR OCCURRENCES,
ARRANGED ACCORDING TO MODES.

Formulas	Deuteros		Pl.Deuteros		Nenano		Total	
	cases	%	cases	%	cases	%	cases	%
1	79	7.64	78	8.76	21	9.25	178	8.27
2	52	5.02	36	4.04	14	6.16	102	4.74
3	24	2.32	21	2.35	5	2.20	50	2.32
4	31	2.99	18	2.02	11	4.86	60	2.78
5	8	0.77	21	2.35	9	3.96	38	1.76
6	17	1.64	38	4.26	5	2.20	60	2.78
7	93	8.99	57	6.40	18	7.92	168	7.81
8	69	6.67	33	3.70	9	3.96	111	5.16
9	106	10.25	62	6.96	15	6.60	183	8.50
10	66	6.38	66	7.41	18	7.92	150	6.97
11	41	3.96	16	1.79	1	0.44	58	2.69
12	30	2.90	7	0.78	4	1.76	41	1.90
13	40	3.86	10	1.12	5	2.20	55	2.55
14	18	1.74	7	0.79	1	0.44	26	1.20
15	45	4.35	20	2.24	4	1.76	69	3.20
16	108	10.44	111	12.47	26	11.45	245	11.39
17	55	5.31	107	12.02	23	10.13	185	8.60
18	7	0.67	24	2.69	6	2.64	37	1.72
19	12	1.16	1	0.11	3	1.32	16	0.74
20	5	0.48	1	0.11	-	-	6	0.27

Formulas	Deuteros		Pl.Deuteros		Nenano		Total	
	cases	%	cases	%	cases	%	cases	%
21	-	-	6	0.67	1	0.44	7	0.32
22	4	0.38	-	-	1	0.44	5	0.32
23	6	0.58	2	0.22	-	-	8	0.37
24	8	0.77	4	0.44	1	0.44	13	0.60
25	-	-	5	0.56	-	-	5	0.32
26	5	0.48	4	0.44	3	1.32	12	0.55
27	-	-	11	1.23	2	0.88	13	0.60
28	4	0.38	13	1.46	-	-	17	0.79
29	6	0.58	4	0.44	-	-	10	0.46
30	10	0.96	3	0.33	-	-	13	0.60
31	2	0.19	-	-	-	-	2	0.09
32	-	-	8	0.89	-	-	8	0.37
33	7	0.67	14	1.57	-	-	21	0.97
34	23	2.22	8	0.89	4	1.76	35	1.62
35	1	0.09	1	0.11	-	-	2	0.09
36	6	0.58	1	0.11	-	-	7	0.32
37	2	0.19	2	0.22	-	-	4	0.18
38	4	0.38	-	-	1	0.44	5	0.23
39	-	-	5	0.56	-	-	5	0.23
40	-	-	2	0.22	-	-	2	0.09
41	-	-	1	0.11	-	-	1	0.04
42	-	-	2	0.22	-	-	2	0.09
43	1	0.09	-	-	-	-	1	0.04
44	-	-	6	0.67	-	-	6	0.27
45	2	0.19	-	-	-	-	2	0.09
46	2	0.19	-	-	-	-	2	0.09
47	1	0.09	-	-	-	-	1	0.04
48	1	0.09	-	-	-	-	1	0.04
49	1	0.09	7	0.79	-	-	8	0.37
50	1	0.09	-	-	-	-	1	0.04
51	4	0.38	13	1.46	4	1.76	21	0.97
52	11	1.06	15	1.68	9	3.96	35	1.62
53	5	0.48	9	1.01	3	1.32	17	0.79
54	-	-	1	0.11	-	-	1	0.04
55	3	0.29	-	-	-	-	3	0.13
56	1	0.09	-	-	-	-	1	0.04
57	-	-	5	0.56	-	-	5	0.23
58	1	0.09	-	-	-	-	1	0.04
59	2	0.19	-	-	-	-	2	0.09
60	-	-	1	0.11	-	-	1	0.04
61	-	-	1	0.11	-	-	1	0.04
62	-	-	1	0.11	-	-	1	0.04
63	-	-	1	0.11	-	-	1	0.04
64	-	-	1	0.11	-	-	1	0.04
65	-	-	2	0.22	-	-	2	0.09
66	-	-	1	0.11	-	-	1	0.04
67	-	-	1	0.11	-	-	1	0.04
68	-	-	1	0.11	-	-	1	0.04
69	1	0.09	-	-	-	-	1	0.04
70	1	0.09	-	-	-	-	1	0.04
71	1	0.09	-	-	-	-	1	0.04
72	1	0.09	-	-	-	-	1	0.04
Total	1034		890		227		2151	

OPENING FORMULAS

TABLE I

Opening formulas	at the beginning of				cases in all
	melodies	sections	colons	units	
1Aϕ		1			
Hα				1	2
2Aα				2	
β			1	1	
Bα			1		
Δα			1	1	
Eα				1	
β				1	
θα				1	
β				2	13
3A				35	
Γ			2		
E			1		
Z				1	39
4Aβ		8			
γ		2			
Bα		1			
β		1			
Γβ				1	13
5Aα		6		1	
Γα		1			
β				1	
γ		1			10
6Aα		1		2	
β		1		1	
γ		1	1	2	
Bα		3			
Γα		1		4	
β				1	
Δβ				1	19

formul.	mel.	sect.	col.	un.	in all
7Aα				34	
β				9	
γ	1	3			
δ	1	2	1	5	
ε	1	1			
Bα				3	
γ		2			
δ		5	1		
Γ	1	1	3	15	89
8Aβ				3	
Zγ		1			
Hα			1		
θα	4	1			
β	3				
γ				2	15
9Aα			27	2	
β			5	1	
γ			6		
δ			3		
Bα			11	2	
β			2		
γ			1	1	
δ				1	
Γα			15	2	
β			1		
δ			5		
ε			5	1	
ζ			3		
η			9	1	
ϑ			1		
ι				1	
Δα			1		
β			1		
γ			6		
δ			1		
ε			3		
Eα			12	1	
β			1		

formul.	mel.	sect.	col.	un.	in all
9Eδ		2	3	2	
ε			3		
Zβ			1		
γ			6	2	151
10Bγ		1			
ε				1	
ζ		1		1	
Δα	4	6	4	2	
β			1		
Eα	1	7		1	
β	2	1		1	
γ	4				
δ			1	2	
Zα		4	1	1	
β		1			
γ		1		1	
δ	1			1	
H	1				
θ	1				
Iα			1		
β				1	56
11Aα		3	1		
Bα		1	1		
β			3		
η			1		
Γα		1			
δ				1	
ε	1				
E	1		2	1	
Z			1		18
12Aα	4				
γ			1		
B		3			
Γα	1	2	1		
β			1	1	
γ			1		
δ		1	1		
Δ			1		
Eα			1	1	
γ			1		21
13Aβ				1	
γ				1	
Bα			4	2	
β			2	2	
Γ			6	10	
Δγ				1	
Eα		1	1		
δ				2	33
14Aα				4	
β				1	
γ				2	
δ				1	
B				1	

formul.	mel.	sect.	col.	un.	in all
Γ				1	
Δ			3	1	
E			1		15
15Aα		1	1		
β			1	2	
γ			1		
ε		1			
Bβ			1	6	
γ			1	4	
δ			1	1	
ε		4			
Γ			2	3	
Δα			2	1	
β				1	
Eα				1	
β				1	
γ			1		37
16Bα				1	
γ		1			
Γ		1			
Δα		3			
β	2	1		1	
γ		1			
Hβ		1			
θα				2	
β				7	
Kα				7	
Mα				1	
Nγ			1		
Ξβ				1	
ε				1	32
17Aα			4	4	
β			2	1	
γ	1				
δ		1			
ε			1	3	
η	2				
ϑ			2	4	
ι				2	
Bα				24	
β				3	
Eα			2	1	
β				1	
γ			1		
δ				1	
ε				1	
Zα		2	2	2	
β		1	5	1	
Hα		1		1	
β		2	1		
δ		1			
ε		1			

formul.	mel.	sect.	col.	un.	in all
17θα				1	
β		1		2	
Κα		1			
β		1			
Λα		4			
β			1		92
18Δβ				1	1
20			1	3	4
21		1	2		3
22A				3	
B		1			4
23			4	3	7
24Aα			1	2	3
25A	3			1	
B	1				5
26A		6	1	2	
B			2		11
27B	2				
Γ	1			3	6
28		7	2	1	10
30A			1		1
31	2				2
34Aα			7	1	
Bα	2				
β		1			
Γα			1		
Δα		1			
β		1			14
36 α				3	3
37	2	2			4
39 α	1	1			
β		1		1	
γ	1				5
40 α				1	
β				1	2
41				1	1
42 α				1	1
43		1			1
45 α		1			1
46				1	1
51Γ			1		
Δα	1	2			
β		1			
Z	1				
H	1				
K				1	
Λ		1			9

formul.	mel.	sect.	col.	un.	in all
52Aα		1	2		
β			4		
B			3		
Δα				2	
β		2	1		
Eα		1			
β		3			
H				1	20
58Aα				1	
δ			1		
ε			1		
ϑ				1	
Bβ			1		
Δ		1			6
54			1		1
55A			1	1	2
57	1	2	2		5
59A				1	
B			1		2
60		1			1
61				1	1
62			1		1
63				1	1
64			1		1
65 α		1			
β				1	2
66				1	1
67			1		1
68				1	1
69		1			1
71				1	1
72		1			1
total number	56	152	264	331	803

T A B L E II

The opening formulas with the number of their occurrences, arranged according to modes.

Opening formulas	Melodies			Sections			Colons			Units			Total
	B	Pl.B	N	B	Pl.B	N	B	Pl.B	N	B	Pl.B	N	
1	-	-	-	-	1	-	-	-	-	-	1	-	2
2	-	-	-	-	-	-	-	-	-	6	2	2	13
3	-	-	-	-	-	-	1	1	1	18	16	2	39
4	-	-	-	4	6	2	-	-	-	-	1	-	13
5	-	-	-	3	4	1	-	-	-	-	1	1	10
6	-	-	-	2	5	-	-	1	-	1	9	1	19
7	1	-	3	4	7	3	-	5	-	37	21	8	89
8	7	-	-	1	1	-	1	-	-	5	-	-	15
9	-	-	-	-	1	1	71	47	14	10	7	-	151
10	4	10	-	14	6	2	5	3	-	2	7	-	56
11	2	-	-	3	2	-	6	3	-	-	2	-	18
12	5	-	-	2	3	1	5	1	2	1	1	-	21
13	-	-	-	1	-	-	7	4	2	16	2	1	33
14	-	-	-	-	-	-	2	2	-	7	4	-	15
15	-	-	-	2	4	-	4	4	3	12	7	1	37
16	-	2	-	3	5	-	-	1	-	9	8	4	32
17	-	3	-	6	8	2	8	10	3	15	33	4	92
18	-	-	-	-	-	-	-	-	-	1	-	-	1
20	-	-	-	-	-	-	1	-	-	2	1	-	4
21	-	-	-	-	1	-	-	1	1	-	-	-	3
22	-	-	-	-	-	1	-	-	-	3	-	-	4
23	-	-	-	-	-	-	3	1	-	2	1	-	7
24	-	-	-	-	-	-	1	-	-	1	1	-	3
25	-	4	-	-	-	-	-	-	-	-	1	-	5
26	-	-	-	4	1	1	1	1	1	-	1	1	11
27	-	2	1	-	-	-	-	-	-	-	2	1	6
28	-	-	-	3	4	-	-	2	-	-	1	-	10
30	-	-	-	-	-	-	-	1	-	-	-	-	1
31	2	-	-	-	-	-	-	-	-	-	-	-	2
34	2	-	-	3	-	-	7	-	1	-	1	-	14
36	-	-	-	-	-	-	-	-	-	2	1	-	3
37	2	-	-	-	2	-	-	-	-	-	-	-	4
39	-	2	-	-	2	-	-	-	-	-	1	-	5
40	-	-	-	-	-	-	-	-	-	-	2	-	2
41	-	-	-	-	-	-	-	-	-	-	1	-	1
42	-	-	-	-	-	-	-	-	-	-	1	-	1
43	-	-	-	1	-	-	-	-	-	-	-	-	1
45	-	-	-	1	-	-	-	-	-	-	-	-	1
46	-	-	-	-	-	-	-	-	-	1	-	-	1
51	-	1	2	1	1	2	1	-	-	-	1	-	9
52	-	-	-	3	3	1	1	3	6	1	2	-	20
53	-	-	-	1	-	-	-	3	-	-	2	-	6
54	-	-	-	-	-	-	-	1	-	-	-	-	1
55	-	-	-	-	-	-	1	-	-	1	-	-	2
57	-	1	-	-	2	-	-	2	-	-	-	-	5
59	-	-	-	-	-	-	1	-	-	1	-	-	2

Opening formulas	Melodies			Sections			Colons			Units			Total
	B	Pl.B	N	B	Pl.B	N	B	Pl.B	N	B	Pl.B	N	
60	-	-	-	-	1	-	-	-	-	-	-	-	1
61	-	-	-	-	-	-	-	-	-	-	1	-	1
62	-	-	-	-	-	-	-	1	-	-	-	-	1
63	-	-	-	-	-	-	-	-	-	-	1	-	1
64	-	-	-	-	-	-	-	1	-	-	-	-	1
65	-	-	-	-	1	-	-	-	-	-	1	-	2
66	-	-	-	-	-	-	-	-	-	-	1	-	1
67	-	-	-	-	-	-	-	1	-	-	-	-	1
68	-	-	-	-	-	-	-	-	-	-	1	-	1
69	-	-	-	1	-	-	-	-	-	-	-	-	1
71	-	-	-	-	-	-	-	-	-	1	-	-	1
72	-	-	-	1	-	-	-	-	-	-	-	-	1
Total	25	25	6	64	71	17	127	101	36	155	147	29	803
	56			152			264			331			

Observations

1) Formulas Opening Melodies

It is evident from the above tables that each mode has its own opening formulas, as follows:

A) Deuteros mode:7.8.10.11.12.31.34.37

B) Plagal Deuteros mode:10.16.17.25.27.39.51.57

C) Nenano mode:7.27.51

Exceptions:

a) Formula 7 occurs as an opening formula of the Deuteros mode (preceded by the MSi) and of the Nenano mode (preceded by the MSi). See "Signatures of the Deuteros mode, B', p. 81.

b) Formula 10 occurs as an opening formula of the Deuteros mode (preceded by the MSi) and of the Plagal Deuteros mode (preceded by the MSi).

c) Formula 27 occurs as an opening formula of the Plagal Deuteros mode (preceded by the MSi) and of the Nenano mode (preceded by the MSi).

d) Formula 51 occurs as an opening formula of the Plagal Deuteros mode (preceded by the MSi) and of the Nenano mode (preceded by the MSi or).

2) Formulas Opening Sections

A) Deuteros mode:4.5.6.7.8.10.11.12.13.15.16.17.26.28.34.43. 45.51.52.53.69.72.

B) Plagal Deuteros mode:4.5.6.7.8.9.10.11.12.15.16.17.21.26. 28.37.39.51.52.57.60.65.

C) Nenano mode:4.5.7.9.10.12.17.22.26.51.52.

Details:

Formulas occurring:

a) in the Deuteros mode only:13.34.43.45.53.69.72.

b) in the Plagal Deuteros mode only:1.21.37.39.57.60.65.

c) in the Deuteros and the Plagal Deuteros modes:6.8.11.15.16.28

d) in the Plagal Deuteros and Nenano modes:9.

e) in all three modes:4.5.7.10.12.17.26.51.52.

3) Formulas Opening Colons

A) Deuteros mode:3.8.9.10.11.12.13.14.15.17.20.23.24.26.34.51. 52.55.59.

B) Plagal Deuteros mode:2.3.6.7.9.10.11.12.13.14.15.16.17.21. 23.26.28.30.52.53.54.57.62.64.67.

C) Nenano mode:2.3.9.12.13.15.17.21.26.34.52.

Details:

Formulas occurring

a) in the Deuteros mode only:8.20.24.51.55.59.

b) in the Plagal Deuteros mode only:6.7.16.28.30.53.54.57.62. 64.67.

c) in the Deuteros and Plagal Deuteros modes:23

d) in the Deuteros and Nenano modes:2.21.

e) in the Plagal Deuteros and Nenano Modes:34

f) in all three modes:3.9.12.13.15.17.26.52.

Formula 9 is first and foremost an opening formula of colons-of all three modes. 132 cases(=50%).

4) Formulas Opening Units

A) Deuteros mode:2.3.6.7.8.9.10.12.13.14.15.16.17.18.20.22.23. 24.36.46.52.55.59.71.

B) Plagal Deuteros mode:1.2.3.4.5.6.7.9.10.11.12.13.14.15.16. 17.20.23.24.25.26.27.28.34.36.39.40.41.42.51.52.53.61.63. 65.66.68.

C) Nenano mode:2.3.5.6.7.10.13.15.16.17.26.27.

Details:

Formulas occurring

a) in the Deuteros mode only:8.18.22.55.59.71.

b) in the Plagal Deuteros mode only:1.4.11.25.28.34.39.40.41. 42.53.61.63.65.66.68.

c) in the Deuteros and Plagal Deuteros modes:9.12.14.20.23.24. 36.46.52.

d) in the Plagal Deuteros and Nenano modes:5.26.27.

e) in all three modes:2.3.6.7.10.13.15.16.17.
Formulas 3.7.15.16.17 are first and foremost opening formulas of units. 195 cases(=59%).

5) Opening formulas which occur only once or twice

A) Deuteros mode:31.43.45.46.55.59.69.71.72.

B) Plagal Deuteros mode:1.30.40.41.42.54.60.61.62.63.64.65.66.67.68.

6) Opening formulas which occur only at the beginning of

a) units:18.36.40.41.42.46.61.63.66.68.71.(+1.2.3.14.22.24.55.65)*.

b) colons:54.62.64.67.(+9.21)*

c) sections:43.45.60.(+5.28)*

d) melodies:31(+25).

7 Opening formulas which occur simultaneously at the beginning of

a) melodies, sections, colons and units:7.8.10.11.12.16.17.34.51.

b) melodies, sections and colons:57

c) melodies and sections:37

d) melodies, sections and units:39

e) melodies and units:27

f) sections, colons and units:6.13.15.26.28.52.53.

g) colons and units:23.24.59.

P Particular observations

1) The formulas 1 and 2 are principally cadential. Nevertheless, in a limited number of cases they have the double function of being opening and cadential. This happens when a melisma or a cadence requires to be followed by a cadence on E or G respectively and the hemistich is too short for a combination with other formulas to be possible.

2) Formula 3 is first and foremost an opening formula of units. Only in three cases is it found at the beginning of a section. (See formula No. 3,observation A.b).

3) Except for one instance the occurrences of formula No.4 are all at the beginning of section after leading-on cadences on E^F or E^D.

* The formulas in parenthesis are such as occur in other positions too, but only in a very restricted number of cases.

4) When formula 10Δα occurs elsewhere than at the beginning of melodies it is always preceded by a thematismos "thes-kai-apothes".

C A D E N C E S

Cadences are such melodic lines as indicate the end of the melody or a temporary pausing, especially on one of the dominant notes.

The cadences were divided into two categories[1] :

a) The real cadences (C), and

b) Leading-on cadences (C1).

The C1 differ from the C by being slightly modified at the end by the addition of one or more neumes or a whole formula to connect them to a following opening formula.

The reasons why I have not in the present study followed the threefold division are of an entirely practical character I think that the twofold division which I have used gives a more exact picture of the syntactic structure of the melodies.

The C and C1 were further subdivided into the following categories:

a) CA and C1A

The CA occur at the end of melodies or sections of melodies at such points at which the text usually carries a full stop or a

---

1 In the contemporary system of Byzantine music the cadences are divided, according to their position within the melodies, into the following three categories:
a) Final, i.e. such as occur at the end of the melodies.
b) Complete, i.e. such as occur in the course of the song on the basic note on points at which the text has a full stop or a high point.
c) Incomplete, i.e. such as occur in the course of the song, especially on the dominant notes, on points at which the text has a high point or a comma.
See Χρυσάνθου, Μέγα θεωρητικόν τῆς μουσικῆς, Trieste 1832, p.133. Δ.Γ. Παναγιωτόπουλου, Θεωρία καί πρᾶξις τῆς Βυζαντινῆς μουσικῆς, Athens 1947, p.128. Ἰωάννου Μαργαζιώτου, Θεωρητικόν τῆς Βυζαντινῆς ἐκκλησιαστικῆς μουσικῆς, Athens 1968, pp.35-36

high point. The C1A occur in the same positions as the CA with the exception that they are never found at the end of melodies.

b) CB and C1B

These occur at the end of colons at such points at which the text usually carries a high point or a comma.

c) CC and C1C

These are found at the end of units at such points at which the texts have a comma or no interpunction at all. The following table shows the notes on which the above cadences are realized.

CA : on E

C1A : on E, E^D, E^F, E^G

CB : on D,E,G,b

C1B : on $D^a, E, E^D, E^F, E^G, G^F, G^b, G^{bc}, b, b^a, b^d$

CC : on D,E,G,a,b,d.

C1C : on $D^a, E, E^D, E^F, E^G, G^a, a, b, b^a, b^c, b^G, G^b$.

The cadences are described infra in the following order:

Cadences on E (CA,C1A,CB,C1B,CC,C1C).

Cadences on G (CB,C1B,CC,C1C).

Cadences on a (CC,C1C).

Cadences on b (CB,C1B,CC,C1C).

Cadences on D (CB,C1C,CC,C1C).

Cadences on d (CC).

CADENCES ON E

CA: 163 cases.

For CA cadences on E the following formulas are used:

a) 1[A(α,β,γ,δ,η),B(α,β),Γ(α,β,γ),Δ(α,β,γ,ζ),E(α,β,γ,δ),Z(α,β), Hα] (11,7. 11,14. 12,5. 13,3. 21,18. 22,11. 23,11. 24,11. 27,11.28,12 .....in all 138 cases).

b) 16[A(β,γ),Δγ,Z(β,δ), M(β,γ,ε,ζ,η)] (69,11. 69,13. 72,13. 81,10. 102,31.... in all 19 cases).

c) 40α (64,2)

d) 44(β,γ)(49,11. 64,2. 64,4. 84,6).

e) 48 (28,5)

CA cadences are followed by a musical dot and a MeSi*, the

* Lack of MeSi occurs when the CA cadence is found at the end of a melody(56 cases). This shows that the modern habit of "confirming"the final tone by means at a "μαρτυρία" is not old.

the latter being in 41 cases, in 8, in 1, in 12, in 23, in 13, and in 4 cases.

Lack of MeSi occurs only in 5 cases for which I am not able to offer any explanation.(28,5.37,3.69,11.88,10.111,7).

ClA :45 cases.

For ClA cadences on E^G,E^F,E^D,E, the following formulas are:

a) 1(Aβ,Γβ,Δβ,Eβ,Zβ),16Zζ + 4Eα(3,3. 18,5. 24,9. 72,9. 78,6. 88,15 97,4. 103,2. 103,13. — 102,6)

b) 1(Aε,Bγ,Γζ,Δδ,Eε),16Mδ + 10Aα(3,5. 16,3. 21,9. 29,8. 36,7.66,2. 68,9. 84,13. 84,19. 92,10.97,8 78,12. 90,7. 102,18. 106,11).

c) 1Eζ, 40α + 10Bα (110,4.— 64,7).

d) 1(Aζ,Γδ,Eη,Zγ),16Mα, + 10Bβ (3,8. 17,2. 29,13. 34,11. 50,2. 72,3— 102,22).

e) 1Δζ, 16Aγ, 44α + 10Γα (51,2.— 48,4 — 79,4).

f) 1(Aβ,Eβ) + 10Γβ (3,11. 33,10. 95,3).

g) 1Bδ,16Δγ,53Γ + 32A (21,7.— 78,4 — 79,16).

h) 1Γε + 33Γ (102,28)

i) 1θ + — (49,14).

ClA cadences are invariably followed by a musical dot but never-save for one instance(3,9)- by any MeSi, the reason being that a ClA cadence is itself a substitute for a MeInt.

CA and ClA cadences are usually located at such points where the corresponding text has a full stop or a high point, as will be evident from the table below:

cadences	full stop (.)	high point (˙)	comma (,)	no sign	total
CA	73	42	44	6	164
ClA	5	20	19		46
Total	78	62	63	6	209

This means that the characteristic position of CA and ClA cadences is at the end of melodies and sections of melodies of all three modes.

If we investigate their occurrences at such points where the text has a comma we find that this happens:

1) When there are long stretches of text without any full stop or high point and a CA or a C1A is needed. In such cases the position of the CA or C1A is chosen with great care to avoid breaking the continuity of the text. Suitable positions are:
   a) at the end of a clause that is paratactically joined to the following one by means of the conjunction καί (14,2. 24,13.44,11.49,11.64,9.69,5.72,9...).
   b) at the end of a clause that is followed by a relative clause introduced by a relative pronoun like δι'οὗ,δι'ἧς (36,7.66,2.68,9...)
   c) where a clause ends with an invocation like "Χριστέ ὁ θεός ἡμῶν""Λάγε καί υἱέ","Ὅσιε πάτερ Συμεών" (9,2.12,3.21,7.38,6. 65,5...).
2) When there are long stretches of text containing two or more phrases in apposition or asyndetically added paratactic clauses, like Σταυρέ τοῦ Χριστοῦ, Χριστιανῶν ἡ ἐλπίς, πεπλανημένων ὁδηγέ,...ἐλέησον ἡμᾶς. In these cases the position of the CA or C1A is chosen at will by the melodist but care is always taken to produce symmetry (49,9.67,3.67,5.78,4.102,6..)
3) Finally this happens in some cases in which either the text tradition shows variant readings or the interpunction is probably erroneous. (3,5.3,8.11,7).

If we investigate the cases in which no grammatical punctuation follows we shall see that this is the case:

a) in proems (33,3.38,2).
b) when there is a long textual period without any fullstop or high point (18,9.24,9). In the second case (24,9), lines 10 and 11 are followed by high points. Here, the end of line 11 was considered suitable for a CA, but if a CA was placed also at the end of line 10 the result would be two CA separated by a very short interval only. This is why the end of line 10 has a CB on G while the CA is pushed back to the end of line 9 where the expression "τάς φυλάς τοῦ Ἰσραήλ" occurs.
c) When a whole section is repeated unchanged (69,13). In this case the section 69,12/13 constitutes an exact repetition of 69,10/11.

d) The case 88,4 is difficult to interpret-probably the melodist intended to lend extra emphasis to the phrase "'Ιωάννης ὁ Πρόδρομος" by splitting it up.

CB :8 cases

For CB cadences on E the following formulas are used: 1Δα,16[Bβ,Δ(γ,ε),E,Hδ,Nα]. CB cadences are followed by a musical dot and a MeSi,viz. , , or . (65,1.66,1.79,19.84,1.91,11.91,17.95,4.111,6).

C1B:21 cases

For C1B cadences(E^G,E^E,E^D,E) the following formulas are used.

a) 1Δθ,16Zγ,27B +10Aα (84,14. — 106,2. — 67,1).
b) 16Ξζ,51Λ +10Bγ (56,6. 95,1.— 88,11)
c) 16Δδ +10Bδ (66,6)
d) 7Aδ,7Γ,28 +10Zβ (102,2.— 55,2.— 44,5. 51,3)
e) 16Λα +10H (95,9).
f) 16(Δε,Δζ,Mδ,Ξα) +4E(α,β,γ)(49,1. 78,2.—17,5.28,1.—4,6.11,10)
g) 1Γα,16Δγ,28 +32A (79,8. — 22,1.— 69,2).

C1B cadences are followed by a musical dot but never by any MeSi. A comparison of CA and C1A cadences with CB and C1B cadences shows that they present the same characteristics though they differ as regards their position within the melodies.

CB and C1B cadences occur:

a) at the end of prologues of melodies(22,1.28,1.49,1.55,2.65, 1.66,1.67,1.69,2.78,2.84,1.95,1.102,2.106,2).
b) at the end of independent colons at the beginning of sections. Such colons occur in places where the melodist would seem to wish to throw the text into relief.(4,6.11,10.17,5. 44,5.51,3.56,6.66,6.79,19.84,14.88,11.91,11.95,4.95,9.111,6).
c) at the end of an E colon which is followed by another E colon whose cadence appears to be stronger(79,8).

CC 34 cases

For CC cadences on E the following formulas are used:

a) 1Bα (111,2)
b) 16[Aα,B(α,β),Δ(γ,ε),E,Z(α,β,ε),Mθ] (21,12. 21,15. 23,1. 28,8. 33,4..in all 21 cases).
c) 5Δ (68,15)

d) 10Eγ(23,1. 33,1. 37,1)

e) 39(α,β,γ) (64,1.64,5. — 64,3. 51,8.— 106,1)

f) 42β (51,7)

g) 44α (48,3

CC cadences occur at the end of units of E colons(21 cases). They are never,in any of the above cases, followed by a MeSi. A musical dot is found to follow in 8 cases, at such points at which there is grammatical interpunction of the text(4,9.48,9. 51,7.68,15.84,10.88,5.92,3.106,1), and in 4 further cases in which, it is true, no grammatical interpunction occurs, but the breaking up of the text does not create any difficulties of understanding(81,2.91,17.102,4.111,2).

C1C :22 cases

For cadences on E^G,F^F,E^D,F. the following formulas are used:

a) 16(Mδ,Hε) + 10Aα (27,3.— 72,16).

b) 5Γγ + 10Aγ (106,10).

c) 1Hβ + 10Bα (35,1).

d) 1Δη,10Eγ + 10Bβ (12,6.— 38,1)

e) 16E(ζ,η),28 + 10Bγ (35,8.— 81,11.— 84,7).

f) 16Aδ + 10Bδ (81,14).

g) 16Mδ + 10Γβ (54,17).

h) 16Aγ + 10Γγ (35,10).

i) 7Γ + 10Zβ (90,1).

j) 7(Aδ,Γ) + 10Zγ (18,12. 48,7. 103,11)

k) 16B(β,γ),Nα + 4Eβ (35,13.— 51,13.— 72,14).

l) 1Δε,28 + 32A (79,20.— 35,19).

m) 16Nβ +——— (88,1).

C1C cadences occur at the end of units of E colons(12 cases), G colons(8 cases) and a b colon (1 case). They are neither followed by a musical dot nor by any MeSi.

C A D E N C E S O N G

CB:157 cases.

For cadences CB on G the following formulas are used:

a) 2[A(α,β,γ),B(α,β),Γ,Δ(α,β),E(α,β),Z(α,β,γ,δ),H(α,β)] (3,13. 11,9. 18,7...in all 85 cases).

b) 8[Aα,B(β,γ),Δγ,Eβ] (3,6. 13,1. 24,2..... in all 31 cases).

c) 16θδ (33,7. 38,9. 51,4....in all 3 cases).

d) 18[A(α,β),Bβ,Δ(β,γ)] (9,5. 84,4. 88,6.....in all 17 cases)

e) 20 (92,7. 1 case)

f) 35 (27,8 . 1 case)

g) 51(A,Z,θ) (48,11. 51,8. 68,1. 79,10 4 cases)

h) 2[θ(α,β), 8(Δα,Eα,Zβ), 18(Bα,Γα),17Hβ,6Aβ] +33A(B).

(21,16. 35,9. 79,14. .... in all 15 cases).

CB cadences on G are followed by:

a) musical dot +MeSi,viz. $\ddot{\gamma}$ (127 cases), $\ddot{\gamma}^{\cdot}$ (13 cases, $\ddot{\gamma}^{\cdot\cdot}$ (4 cases), $\ddot{\gamma}^{\cdot\cdot\cdot}$ (1 case), making a total of 145 cases.

b) MeSi $\ddot{\gamma}$ (2 cases) or $\ddot{\gamma}^{\cdot}$ (3 cases) but no musical dot(28,6. 33,6. 81,3.106,6.111,8).

c) musical dot but no MeSi(9,3.12,9.28,7.65,2.84,25.95,5. 104,4. 110,9).

C1B :3 cases

For C1B cadences (G^{F},G^{b},G^{bc}) the following formulas are used:

a) 2Aα+16Nγ (35,3).

b) 51(Bβ,I) (29,16.65,11).

C1B cadences are followed by a musical dot but never by any MeSi.

An examination of the position of CB and C1B cadences relative to the text showed that:

A) they are most often found at such points where the text has a grammatical comma(16,5.24,19.49,3...in all 95 cases.

B) in 24 cases they are found at points where the text has a full stop or a high point. This happens:

a) when another full stop or high point accompanied by CA or C1A is found close by, whether before or after (14,4.17,6. 22,5.29,15... in all 13 cases);

b) when they occur at the end of a prologue (24,2.28,2) or before the epilogue, a position from which CA and C1A cadences are usually excluded (3,13.14,10.18,11);

c) when the high point is followed by a relative clause which is so closely connected with the preceding clause that the high point could be replaced by a comma(38,8.92,7);

d) when they occur in qualifying phrases like "τοῦ Παύλου συνδιλε καὶ τοῦ Στεφάνου σύναθλε" which are equivalent to in-

dependent clauses added for the sake of emphasis (95,10);

e) in one case (79,12) the MeSi precedes; it probably introduces a kind of modulation that requires a resolution into G;

f) finally, in two cases (3,6.11,9) there would appear to be variations in the text tradition.

C) in 41 cases they are found at points where the text does not have any sign of interpunction. This happens when long stretches of text occur without any sign of interpunction and a CB or C1B cadence is needed. In these cases the position of the cadence is chosen with a view to avoid breaking up the continuity of the text (11,12.21,5.21,14.23,5... in all 41 cases).

CC: 14 cases

For CC cadences on G the following formulas are used:

a) 8(Bγ,Eα) (84,21. 103,9).

b) 12(Aγ,Eβ) (4,3. 55,12. 88,18).

c) 18Δα (21,13)

d) 35 (35,15).

e) 51(A,θ) (37,7. 79,5. 79,21).

f) 18Γα,14Aα +33A (56,10.– 37,11)

g) 33A+50 (27,7).

h) 28 (91,6)

They occur at the end of the last unit but one of G,E or b colons and are not followed by any musical dot (except in 5 cases, viz. 4,3.37,11.79,21.91,6.103,9) nor by any MeSi.

C1C : 92 cases

For C1C cadences on G^a or G^b the following formulas and combinations of formulas are used:

a) 2 [Δγ,I(α,β)] (24,10.– 36,10,– 12,4).

b) 8 [Γ(α,β,δ,ε,ζ),Z(α,δ,ε)] (29,6. 34,2. 37,10.. 40 cases).

c) 12[Γ(γ,δ),Δ,E(γ,δ,ε)] (29,11. 44,3. 44,16...8 cases).

d) 16 Iδ (34,7).

e) 17[(Aε,Γδ,Δ(γ,δ,ε)] (28,11. 38,10. 23,10..10 cases).

f) 18[A(γ,δ,ε,ζ)Bγ,Γβ] (44,18. 56,18. 72,2...7 cases).

g) 34[B(β,γ),Γβ] (29,2. 33,16. 50,6....12 cases).

h) 8Bα,9Γη,17Δβ+24 [A(γ,δ),B(α,γ)] (16,2.66,14.78,9.91,3.91,19.97,7).

i) 8Bα,7Bγ,17Δβ,33A +11Γ(γ,ζ,η,θ) (35,4. 37,4. 54,2. 102,29).

j) 9Γη (55,14).

They occur at the end of the last but one unit of E colons (73 cases), G colons (6 cases), D colons (4 cases) and b colons (5 cases). Only in three cases do they occur at the end of the first unit of E colons consisting of three or more units(34,7.37,10.102,26). As a rule they are not followed by any MeSi or musical dot, though in 11 cases there is a musical dot(3,14.33,16.36,10.37,10.56,2.66,12.91,19.91,21.102,3.102,26.102,29), and in 5 cases a musical comma (12,11.13,2.13,5.23,10.24,10).

C A D E N C E S O N a

CC :38 cases

For CC cadences on a the following formulas are used:

a) 9[Aδ,Γ(α,γ),Δε,E(α,γ,ζ),Z(δ,ε,ζ,η)] (14,11.27.9.57,5...20 cases).
b) 15Bε (12,1.12,2.44,1).
c) 16θζ (34,5).
d) 17[A(η,ι),θα,I] (14,5.11,2.49,8...6 cases).
e) 34Aγ (17,7.22,10.24,3.81,5.84,26).
f) 51K (66,10).
g) 53A(ε,η) (69,14.69,16).

They occur at the end of the last but one unit of E colons (29 cases) G colons (3 cases) and D colons (2 cases). In four cases (12,1.22,10.27,9.44,1) they occur at the end of the first or the second unit of E colons consisting of three or more units. They are not followed by any MeSi, nor by any musical punctuation, except for 4 cases in which a musical dot follows (34,5.66,10.102,12:104,5) and 3 cases in which a musical comma follows (11,2.22,10.54,3).

ClC :34 cases

For ClC cadences on a the following formulas are used:

a) 4B(α,β,γ,δ) (13,9. 50,3. 54,8....in all 16 cases).
b) 8(Δβ,Hβ) (22,9. 56,22. 81,16. 95,11).
c) 16θε (72,17. 102,32).
d) 17Aζ (95,1).
e) 47 (27,2).
f) 49(α,β) (36,2. 49,6. 69,10....in all 8 cases).
g) 51B(α,γ) (37,14. 54,21).

They occur:

a) at the end of the first unit of F colons(22 cases), G colons (2 cases), and D colons (4 cases);

b) at the end of the second unit of E colons whose first unit has a CC cadence on E or a C1C on E^F or E^D (72,17.81,12. 84,8.102,21).

c) in other positions. This happens in two cases only (27,2. 54,16). These cadences are followed by a musical dot in 25 cases and by a musical comma in two cases, never by any MeSi.

C A D E N C E S O N D

CB :27 cases

For CB cadences on D the following formulas are used:

a) 5 [A(α,β),B(α,β)] (18,3. 23,2. 84,3....in all 11 cases).

b) 6 [A(β,γ),Γ(β,γ)] (9,7. 56,9. 56,17....in all 11 cases).

c) 51 [Δ(α,β),H] (29,14. 34,1. 34,12. 72,1. 72,4).

They occur at the end of D colons and are followed by a musical dot (except in one case, viz. 29,14). They are followed by the MeSi ☊ in 11 of the cases enumerated sub a) and b); the absence of the MeSi in the remaining 12 cases is probably due to the fact that there is an enjambement in the text.

Of the cases enumerated sub c) there are two in which the cadence is followed by the MeSi ☋ (29,14.34,12), another in which it is followed by ☋ (72,1) and two in which no MeSi occurs (34,1.72,4).

C1B :1 case

A C1B (D^a) cadence is produced by formula 5Bγ. It is followed by a musical dot, but not by any MeSi (90,11).

CC :40 cases

For CC cadences on D the following formulas are used:

a) 5 [A(α,β),B(α,β)] (16,7. 21,8. 22,2...in all 15 cases).

b) 6 [A(α,β),Γ(α,β,γ),Δα,E] (21,17. 33,5. 37,2..in all 16 cases).

c) 10Zδ (22,11).

d) 27A(α,β) (9,1. 48,1. 50,1. 51,1. 79,1. 83,1)

e) 41 (33,9).

f) 51E (33,2).

They occur at the end of the last but one unit of E or G

colons (37 and 6 cases respectively). Only in one case does such a cadence occur at the end of the first unit of an E colon (79,1). These cadences are followed by a musical dot in 10 cases but never by any MeSi.

C1C:6 cases

For C1C cadences on D^a the following formulas are used:

a) 5Γα (111,10).

b) 6(Bα,Γδ) (72,8.— 95,14. 103,7. 103,17).

c) 10Zε (102,9)

They occur at the end of the last unit but one of an E colon (except in one case, viz.95,14). They are not followed by any MeSi, nor by any musical dot (except in one case, viz.103,17).

C A D E N C E S O N b

CB on b :25 cases

For CB cadences on b the following formulas are used:

a) 4[A(α,β,γ,δ,ε),Γ(α,β,γ)] (14,7. 16,4. 21,10. 36,8. 66,3. 68,10 in all 22 cases).

b) 11H (57,1).

c) 13Aβ (55,9).

d) 29Aγ (4,1).

A musical dot follows except in five instances (49,2. 72,10. 84,20.92,11.110,5) and so does a MeSi, viz. ÿ´ (57,1), ⁿÿ´ (102,23) or ⁿÿ (4,1.55,9.66,3.88,16...in all 13 cases).

The MeSi is missing in 10 instances (16,4.44,8.49,2.68,10. 72,10.84,20.90,8.92,11.104,3.110,5). More details of these cases are given on pp. 76-77.

C1B on b :13 cases

a) 13(Aγ,Δβ,Eγ) (3,12. 11,4. 55,11. 56,3. 66,4. 68,11. 104,2).

b) 13Eδ+34Γγ (17,10).

c) 13Δα+15Aδ (54,14).

d) 29(Aβ,Bα,Bβ) (18,2. 24,12. 103,1).

e) 59B (54,15).

C1B on ba :10 cases

a) 13[Δ(α,γ),Eβ]+30A (4,2. 29,3. 37,8. 37,9. 54,20. 54,24. 57,4).

b) 29 Aα+30A (54,1).

c) 55(A,B),+30A (90,5. 102,25).

C1B on b^d : 1 case

11A +4Z (103,3).

C1B cadences on b, ba and b^d are followed by a musical dot (except for 4 instances, viz. (54,1.54,24.66,4.90,5) but never by any MeSi.

They occur at such points where the text has a high point (4 cases), a comma (12 cases) or no sign of interpunction at all (8 cases).

CC on b : 24 cases

For CC cadences on b the following formulas are used:

a) 11[A(α,β,γ),Bα,Γ(α,β),E] (3,6. 11,8. 14,3. 102,16...19 cases).
b) 13(Aα,Bα) (13,7. 97,1).
c) 22A (103,4).
d) 29Aα (48,5).
e) 58 (54,6).

Except for a single instance (97,1) they are neither followed by a musical dot not by a MeSi.

C1C on b :11 cases

a) 11[B(γ,δ),Δ] (3,1. 18,1. 38,3. 48,5. 54,5. 55,1. 65,8.65,12)
b) 11Bα+15Aδ (54,12)
c) 29(Bγ,Γ) (27,1. 33,11)

C1C on b^a :2 cases

a) 11Bδ+30A (11,1)
b) 30Bδ (13,4)

C1C on b^c:2 cases

a) 11 Bε+15Bα (24,7.56,1.92,1).

C1C on b^G:2 cases

a) 15Eα (24,1.102,1)

C1C cadences on b , b^a,b^c and b^G are not followed by a musical dot except for four instances (3,1.11,1.24,7.38,3) nor by any MeSi.

C A D E N C E S O N d

CC on d :6 cases

The following formulas produce CC cadences on d:

a) 4Δ (55,10.66,9)
b) 45(α,β). (17,10. 97,9)
c) 54 (66,4)
d) 62 (79,11)

No musical dot follows (except in two instances, viz (55,10 66,9) nor any MeSi.

TABLE OF CADENTIAL FORMULAS WITH THE NUMBER OF THEIR OCCURRENCES, ARRANGED ACCORDING TO MODES

	Deuteros		Pl.Deuteros		Nenano	
CADENCES	cases	%	cases	%	cases	%
CA E	71	18.78	75	22.25	17	19.31
ClA E^G	8	2.11	2	0.59	2	2.27
E^F	6	1.58	7	2.07	2	2.27
E^D	4	1.05	6	1.78	2	2.27
E	2	0.52	4	1.18	-	-
total	91	24.04	94	27.87	23	26.12
CB E	3	0.79	4	1.18	1	1.13
ClB E^G	4	1.05	2	0.59	-	-
E^F	-	-	3	0.89	-	-
E^D	2	0.52	4	1.18	1	1.13
E	4	1.05	1	0.29	-	-
total	13	3.41	14	4.13	2	2.26
CC E	8	2.11	23	6.82	3	3.40
ClC E^G	-	-	2	0.59	1	1.13
E^F	1	0.26	3	0.89	2	2.27
E^D	3	0.79	5	1.48	-	-
E	4	1.05	1	0.29	-	-
total	16	4.21	34	10.07	6	6.80
CB G	74	19.57	60	17.80	23	26.23
ClB G^F	-	-	1	0.29	-	-
G^b	-	-	1	0.29	-	-
Gbc	1	0.26	-	-	-	-
total	75	19.83	62	18.38	23	26.13
CC G	6	1.58	7	2.07	1	1.13
ClC Ga	47	12.43	30	8.90	11	12.50
G^b	2	0.52	2	0.59	-	-
total	55	14.53	39	11.59	12	13.63

CADENCES	Deuteros		Pl.Deuteros		Nenano	
	cases	%	cases	%	cases	%
CB D	10	2.64	12	3.56	5	5.68
C1B D^a	1	0.26	-	-	-	-
total	11	2.90	12	3.56	5	5.68
CC D	7	1.85	29	8.60	4	4.54
C1C D^a	3	0.79	1	0.29	2	2.27
total	10	2.64	30	8.89	6	6.81
CC a	24	6.34	14	4.15	-	-
C1C a	16	4.23	13	3.85	4	4.54
total	40	10.57	27	8.00	4	4.54
CB b	12	3.17	8	2.37	5	5.68
C1B b	11	2.91	-	-	1	1.13
b^a	9	2.38	2	0.59	-	-
b^d	1	0.26	-	-	-	-
total	33	8.72	10	2.29	6	6.81
CC b	18	4.76	6	1.78	1	1.13
C1C b	6	1.58	6	1.78	-	-
b^a	1	0.26	-	-	-	-
b^c	4	1.05	-	-	-	-
b^G	2	0.52	-	-	-	-
total	31	8.17	12	3.56	1	1.13
CC d	3	0.79	3	0.89	-	-
total	3	0.79	3	0.89	-	-
TOTAL	378	99.81	337	99.87	88	99.91

MELISMATA – THEMATISMOI

I. Melismata

In spite of being more expressive and ornamented than those of the Hirmologion, the melodies of the Sticherarion are basically simple, almost syllabic. Yet on certain occasions they contain melodic lines with special embellishment. Such lines, as distinguished from the common simple ones, are called melismata. The reason why such melismata are used is evidently the desire of the melodist to highlight words or phrases which he considers particularly important.

The melodies investigated contain 21 cases of melismata (see formula No. 51), distributed as follows: Deuteros mode 4 cases, Plagal Deuteros 13 cases, Nenano 4 cases. Whether the apparent predominance of the Plagal Deuteros mode is due to sheer chance or not could be established by investigating the other melodies of the Sticherarion.

Some of the melismata have two or more occurrences, which means that they constitute formulaic melismata repeated without change in suitable positions (see 51A,Δ,θ). Others occur once only, which means that they are particular compositions of the melodist for each individual case. To establish when this is the case further inquiry into the other melodies of the Sticherarion will be needed.

As regards the position of the melismata within the melodies we observe that they occur:

a) at the beginning of melodies (34,1.68,1.72,1).
b) at the beginning of sections (29,14.34,12.65,10/11.72,4.88,11).
c) at the beginning of a colon (103,6).
d) at the end of the first unit at the beginning of a section (79,5).

e) combined with formula No. 19 (ouranisma) at the end of cola or units (29,16.37,14.54,21).

f) at the end of the last but one unit of E colons (33,2.66,10.79,21).

g) at the end of colons, usually at the beginning of sections (48,11.51,8.79,10).

II. Thematismoi[1]

Concerning the thematismoi the monk Gabriel (codex Laura 610)[2] says this:" 'Ο δέ θεματισμός ὁ ἔσω καί ὁ ἔξω, ἀπό τῆς σχηματογραφίας εἰσί δῆλοι. Θῆτα γάρ τό στοιχεῖον ἑκάτερον καί διά ταύτης ἄγεται εὐθεῖα, ἧς τό τέλος εἰ μέν ἔσω κάμπτει ὁ ἔσω γίνεται θεματισμός' εἰ δέ ἔξω, δηλοῖ τρεῖς φωνάς εἰπεῖν, ὁ δέ ἔσω δύο. 'Ομοίως καί τό θές καί ἀπόθες, καί ταῦτα δύο θῆτα εἰσίν ἐχόμενα ὑπό μιᾶς γραμμῆς καί διά τοῦτο θές καί ἀπόθες' δηλοῖ γάρ τήν θέσιν τοιάνδε ποιεῖν".

From the above passage the following may be gathered:

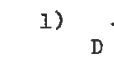
a) The origin of the term "thematismos" is the symbol used to indicate the musical figure (thesis),i.e. a capital theta (θ), this being an abbreviation of the word θέμα.

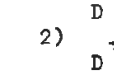
b) the thematismos exo indicates a melodic ambitus of three tones, i.e. one fourth. It is symbolized by means of a θ with the right end of the horizontal stroke bent upwards.

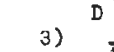
c) The thematismos eso indicates a melodic ambitus of two tones,i.e. one third. It is symbolized by means of a θ with the right end of the horizontal stroke bent downwards.

d) The thematismos "thes-kai-apothes" is symbolized by means of a double theta with a common horizontal stroke: θθ

In the melodies investigated the following types of thematismoi occur:

1)  4A(α-β-γ-δ-c)
D G a d c b

2)  4B(α-β-γ-δ)
D G a c b a

3)  4Γ(α-β-γ)
G a b d c b

1. See Egon Wellesz, A history of Byzantine music and Hymnography, Oxford 1961[2], p.296. Konstantin Floros, Universale Neumenkunde,vol.I,Kassel 1970,pp.252ff.H.J.W.Tillyard. Handbook of the Middle Byz. Notation,p.27

2) P.Lorenzo Tardo, L'antica melurgica bizantina,Grottaferrata 1938,pp.194-195.

4) 4Δ(α-β)
c d f e d

5) 4E(α-β-γ)
E FG F G

6) 4Z
b cd c d

The description given by Gabriel leaves no doubt that type (5) is the thematismos "thes-kai-apothes" while type (6) is another form of the same thematismos in transposition.

Investigating the types 1,2,3 and 4 we observe that the symbol ⊖ is of no use for the purpose of dividing them into "eso" and "exo" as its horizontal stroke is neither bent upwards nor downwards. We can however, obtain some help from the fact that type (1) covers three tones, i.e. one fourth while types 2,3,4 cover two tones. i.e. one third.

This division is supported by the evidence of later manuscripts which under type (1) have the symbol ⊖ while they have the symbol ⊖ under types 2,3 and 4. (See MS Sinai 1237 from the 15th c.).

On the basis of the above evidence the thematismoi were classified as follows:

A) Thematismos exo formula 4A(α,β,γ,δ,ε).
B) Thematismos eso formulas 4B(α,β,γ,δ).4Γ(α,β,γ).4Δ(α,β).
C) Thes-kai-apothes formulas4E(α,β,γ).4Z.

A) Thematismos exo

D G a d c b

It occurs:a) at the beginning of a section, concomitant with monosyllabic or disyllabic words with a stress on the last syllable like ὦ,δυό,δι'οὖ, δι'ἧς, μεθ'ὧν, μεθ'ἧς (16,4.21,10.29,9.36,6.66,3.68,10.84,20.90,8.92,11.102,23).b) at the end of complete b colons, concomitant with disyllabic words with a stress on the last syllable (14,7.44,8.104,3).

The thematismos exo is followed:in 6 cases by a musical dot and the MeSi or (14,7.21,10.29,9.36,8.66,3.102,23);in 5 cases by a musical dot alone (16,4.44,8.68,10.90,8.104,3); in two cases neither by a musical dot nor by a MeSi(84,20.92,11).

The interpretation of these data is by no means easy and

evident. But of all possible interpretations I submit that one that can be supported by considerations of metre and sense of the text must possess the highest degree of probability.

Let us first investigate the cases in which the thematismos exo is found at the beginning of a section.

1) δι δ· παρ ρη σί αν ἔ χων πρός αὐ τόν 21,10/11.
υ'– " – υ'– υ'– υ'– υ'–

2)a)δι δ· καί εἰς ὁ σμήν μύ ρου τῶν θαυ μά των σου 16,4/5.
υ'– " – υ υ' – " – υ'– υ'– υ'–

b)δι δ· καί εἰς ὁ σμήν μύ ρου τῶν θαυ μά των σου
υ'– υ'– υ' – " – υ'– υ'– υ'–

3) μεθ'ὧν δι ά ποι κί λων βα σά νων 84,20/21.
υ'– υ'– υ'– υ υ'– υ

In case (1) the first syllable after the thematismos carries a metrical stress. Consequently we have two adjacent stressed syllables between which a metrical caesura arises. This can be covered by means of a pause. Consequently the existance of a MeSi at the caesura point is acceptable (cf.also 29,9, 36,3.66,8.102,23).

In case (2) the first syllable after the thematismos may be considered either stressed (2a) or unstresses (2b). However, it would be most correct to consider it unstressed, as the rhythmical flow is best preserved in that way. In order, then, to avoid misinterpretation a musical dot is used, but no MeSi (16,4.68,10.90,8).

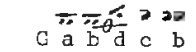
In case (3) the rhythm proceeds in a regular fashion. Hence there is no need for a musical dot, nor for a MeSi(84,20.92,11).

If we look into the remaining cases, in which the thematismos exo occurs at the end of complete b colons, we observe that if there is a natural break in the text the thematismos is followed both by a musical dot and a MeSi(14,7);otherwise there is just a musical dot (44,8.104,3).

B) Thematismos eso

The thematismos eso occurs in three forms:

I) The thematismos eso with a cadence on b (formula 4Γ(α,β,γ).

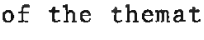


(9 cases)

It occurs at the end of complete b colons It is followed; in 6 cases by a musical dot and the MeSi, in 3 cases by neither. As was the case with the thematismos exo this must probably be explained with reference to the metrics and the sense of the text. We observe, then, that musical dot+MeSi occur:
a) When at the point of the thematismos there is a natural break in the text, indicated by means of a comma(11,11.18,10. 22,7) and
b) When although there is no natural break a metrical caesura arises because the first syllable after the thematismos is stressed (35,2.65,6.88,16).

In the remaining cases, in which there is neither a natural break nor a metrical caesura, neither a musical dot nor a MeSi occurs (49,2.72,10.110,5).

2) Thematismos eso with a cadence on a (formula 4Β(α,β,γ,δ)



(16 cases)

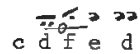
In 11 cases the thematismos (2) occurs in combination with formula No. 19 which constitutes the so-called ouranisma (12,10 13,9.54,8.54,16.56,8.56,16.68,8.68,17.81,9.88,22.103,16). In these cases the ouranisma is invariably preceded by formula No. 9. or by the combination 9+36 and a CB cadence on G. Thus the complete musical line will have the form:CB on G 9+(36)+19+ 4Β(β,γ,δ).

In four cases in which the unit of the thematismos is preceded by ClA(E^D,E^F) or CC(F) the thematismos is not linked to the ouranisma but to other formulas or groups of formulas,such as 10Bα(β),10Zγ+17Λγ,6Γα+17Δβ,(50,3.64,8.79,17.102,21). Finally in one case the thematismos in question is linked to the formula (melisma) No.51Γ(103,6).

As regards its position within the melodies, the thematismos (2) is found in two cases at the beginning of a section (50,3.64,8), in one case at the end of the last unit but one of an E colon(102,21), and in the rest at the end of the first

unit of E or D colons. The thematismos (2) is always-save for one case (88,22)- followed by a musical dot, but never by any MeSi.

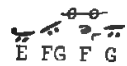
3) Thematismos eso with a cadence on d (formula 4Δα,β)



(2 cases)

In 55,10 it occurs at the end of the first unit of a b colon, in 66,9 at the end of the first unit of an E colon. It is followed by a musical dot but not by any MeSi.

C) Thematismos thes-kai-apothes. (formula 4E(α,β,γ)



(19 cases).

The thematismos thes-kai-apothes has 19 occurrences in the melodies investigated, being attached to the end of cadencial formulas like 1(Aβ,Γβ,Δβ,Δζ,Eβ,Zβ),16(Bβ,Bγ,Zζ,Mδ,Nα,Ξα)after which it forms leading-on cadences on E^{G}.

The thematismos is followed by a musical dot -except for three instances (35,13.51,13.72,14), but never by any MeSi.

As regards its position within the melodies the thes-kai-apothes thematismos occurs a) at the end of sections (3,3.18,5.24,9.72,9.78,6.88,15.97,4.102,6.103,2.103,13);b) at the end of colons (4,6.11,10.17,5.28,1.49,1.78,2);c) at the end of units (35,13.51,13.72,14).

In one case (103,3) thes-kai-apothes occurs in transposition to b

It is followed by a musical dot but not by any MeSi.

SIGNATURES

Main Signatures

	MSi	First note of following formula	Cases	Total number of cases
1		G	3,1.4,1.12,1.54,1.56,1.57,1.92,1.	7
2		E	27,1.29,1.44,1.103,1.	4
3		b	11,1.13,1.14,1.17,1.18,1.24,1.55,1.81.1.90,1.91,1.97,1.102,1.104,1.	13
4		b	28,1.	1
5		E	9,1.22,1.23,1.33,1.37,1.38,1.48,1.50,1.51,1.64,1.65,1.78,1.79,1.83,1.95,1.106,1.	16
6		G	21,1.36,1.	2
7		a	67,1.	1
8		G	34,1.	1
9		D	35,1.49,1.66,1.84,1.	4
10		C	69,1.	1
11		a	16,1.72,1.88,1.110,1.	4
12		a	68,1.111,1.	2

Observations:

I. Main Signatures of the Deuteros Mode

A. As will be seen from the above table the melodies of the Deuteros mode may begin with either +G or E (cases 1 and 2), or +b (case 3), or +a(b) (case 4). So the question must be asked: what are the criteria by which the MSi and the beginning of a melody of the Deuteros mode are determined? The answer to this question can hardly be given in the form of general and exact rules, which could only be formulated after a review of a larger number of instances. Nonetheless I think that certain observations made on the present material may suggest the outlines of the answer.

In my opinion the accentuation and metrical shape of the text constitute a basical criterion.

Examples:

a)
θαυ μα στός εἶ ὁ θε ός

b)
τήν τῶν ἁ πο στό λων ἀ κρότη τα

c)
ἐκ ρύ ζης ἀ γα θῆς

d)
ὅ τε τῷ πά θῃ σου κύ ρι ε

e)
τύς ὁ ἤ χος

In case (a) the strong accentuation of the text occurs at the beginning of the second metrical foot, while in case (b) it occurs at the beginning of the third foot. Thus in case (a) the melody begins on a G with a weak accentuation in the first metrical foot and proceeds to a b with a strong accentuation in the second foot. In case (b) the melody begins on an E with a weak accentuation in the first foot, proceeding to a G with a stronger accentuation in the second foot and finally to an ab with a very strong accentuation in the third foot. In cases (c),(d) and (e) the strong accentuation occurs at the beginning of the first foot and the melody begins on a b.

The above observations allow the following conclusions:

a) If the strong accentuation occurs at the beginning of the first foot, the melody begins with +b, or +a or b.

b) If the strong accentuation occurs at the beginning of the second foot, the melody begins with +G.

c) If the strong accentuation occurs at the beginning of the third foot the melody begins with +E.

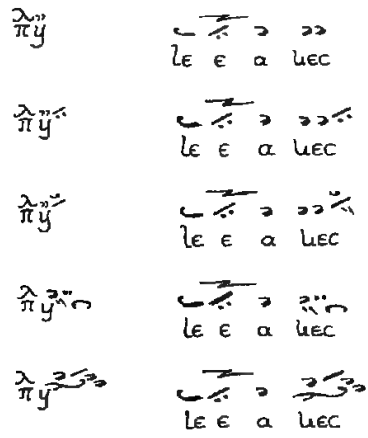
B) As regards the MSi (case 4) we observe:

As a MSi or MeSi the sign is encountered before the formulas 7(A6,B6,Γ) and 28 (28,1.35,10.35,19.49,16.51,6). But on other occasions the same formulas are found preceded by MSi or MeSi or . The explanation, I think, is that replaces and when a cadence of G precedes instead of one

on E. In the present case (28,1) the reason why the MSi ÿ´ was employed is the fact that a melody of the Deuteros mode precedes it.

ii. Main Signatures of the Plagal Deuteros mode

In the Pl. Deuteros mode the variations in the use of MSi are greater (cases 5,6,7,8,9,10). The MSi in question no doubt constitute a compressed form of Main Intonations, as follows:



The difficulty of giving general and exact rules concerning the criteria governing the beginning of a melody and the choice of a suitable MSi is no less here than was the case with the MSi of the Deuteros mode. But here too I wish to present certain observations which may contribute to the solution of the problem.

a) πλ̈ÿ	‾ υ ' ´ υ ' ‾ υ βά σι μον κρη πῖ δα	23,1. 33,1. 37,1. 38,1. 51,1. 64,1. (22,1)
b) πλ̈ÿ	υ ' ‾ υ ' ´ υ ' ‾ υ ὁ πνεύ μα τι ἁ γί ῳ	9,1. 48,1. 50,1. 79,1. 83,1. 106,1.
c) πλ̈ÿ	´ υ ' ´ υ ' ‾ υ ' ´ υ υ ' ‾ ἡ δι ην θι σμέ νη ταῖς ἀ ρε ταῖς	78,1.
d) πλ̈ÿ	´ υ υ ' ‾ υ υ ' ´ υ ὁ τε τρα πέ ρα τος κό σμος	65,1. 95,1.
e) πλ̈ÿ´	υ υ ' ‾ υ υ ' ‾ υ υ ἱ ε ρεύς ἐν νο μώ τα τος	21,1. 67,1.
f) πλ̈ÿ´	‾ υ ' – υ ' – υ ' ‾ σή με ρον στει ρω τι καί	36,1.

g) [illegible] υ υ' ⸗ υ υ ' ⸗ υ υ 35,1. 49,1. 66,1. 84,1.
εἰ καί θεί ῳ βου λή μα τι

h) [illegible] ⸗ υ – υ ⸗ υ υ 69,1.
σή με ρον προ έρ χε ται

i) [illegible] +Melisma 34,1.

Observations:

a) Two-mora rhythm, accentuation in the first and the third foot beginning with [illegible] +E.

b) Two-mora rhythm (in three cases the second foot consists of three moras), accentuation in the first and third foot, one unstressed syllable at the beginning of the verse, beginning with [illegible] +E. On the stressed syllable of the first foot the melody may remain on the E (79,1.83,1.106,1) or ascend to a G (9,1.48,1.50,1).

c) Two-mora rhythm with the exception of one three-mora foot, with the strong accentuation preceded by two feet without accentuation, beginning with [illegible] +E.

d) Three-mora rhythm, strong accentuation in the second foot, beginning with [illegible] +E.

e) Three-mora rhythm, accentuation in the second and third foot, two unaccentuated syllables at the beginning of the verse, beginning with [illegible] +G.

f) Two-mora rhythm, accentuation in the first and fourth foot, beginning with [illegible] + G.

g) Three-mora rhythm, strong accentuation in the first foot, beginning with [illegible] +D.

h) Two-mora rhythm with a three-mora foot in the third place, accentuation on the first and third foot, beginning with [illegible] +C.

i) Melisma, beginning with [illegible].

Conclusion:

A) Beginning with [illegible] +E. a) when the rhythm is a two-mora one (often with one three-mora foot without accentuation between the two accentuated feet) and the accentuation occurs on the first and third foot. In such cases where an unaccentuated syllable occurs at the beginning of the verse the melody starts on E, remaing on the E or ascending to a G on the first accentuated syllable.

b) When the rhythm is a three-mora one and two unaccentuated feet precede the strong accentuation.
c) When the rhythm is a three-mora one, and one unaccentuated foot precedes the strong accentuation.

B) Beginning with +G. a) When the rhythm is a three-mora one, and the accentuation is on the first and second foot, and one or two unaccentuated syllables occur at the beginning of the verse.
b) When the rhythm is a two-mora one and the accentuation is on the first and fourth foot.

C) Beginning with +D. When the rhythm is a three mora one, and the accentuation is on the first foot, and two unaccentuated syllables occur at the beginning of the verse.

D) Beginning with +C. When the rhythm is a two-mora one but the third position is occupied by a three-mora foot and the strong accentuation is on the first and third foot.

E) Beginning with +G. There is only one instance of this (34,1) and the melody begins with a melisma.

iii. Main Signatures of the Nenano mode

The melodies of the Nenano mode begin with (case 11) or (case 12).

Whether the one or the other MSi is preferred depends in my opinion on the preceding melody. That is, if the preceding melody is one of the Pl. Deuteros mode the MSi employed is . But if the preceding melody belongs to any of the other modes the MeSi will be employed. (Concerning the MSi which in my opinion replaces the MSi when a melody of the Deuteros mode precedes, see "Main Signatures of the Deuteros mode, B"above p. 81).

Medial Signatures

The following table shows all the medial signatures that occur in the melodies under investigation. They are found between two colons or two sections and consequently they are always preceded by a cadence and followed by an opening formula.

In general the MeSi fall into three classes:
A) MeSi which act both ways, i.e. which indicate the last note

Medial Signatures

	Preceding cadence	MeSi	First note of following formula	Elements connected by the MeSi	Deuteros mode: Sample cases	Deuteros mode: Total number	Pl.Deuteros mode: Sample cases	Pl.Deuteros mode: Total number	Nenano mode: Sample cases	Nenano mode: Total number	Total number of cases
1	CB on G		G	colons	33.35.37.	58	96.213.216.	46	162.166.169.	18	122
2	CB on G		a	colons	145.5514.	2	226.	1	682.	1	4
3	CA on E		G+conf.	sections			69,8.	1			1
4	ClA on E^D		G+conf.	sections	3,9	1					1
5	CB on D		G+conf.	colons					72,2	1	1
6	CB on G		a+conf.	colons			3510.3519.516.	3			3
7	CB on G^a		a	colons			49,16	1			1
8	CB on G		b+conf.	colons	1411.1812.287.	9	487.678.8416	4	6815.8820.	2	15
9	CA/CB on E		b+conf.	sections/colons	1710.5424.558.	5	652.6510.669.842.	4			9
10	CA on E^b		b	sections	5412.905.10211.	3	377.7910.	2			5
11	CB on D		b+conf.	colons	2917.	1					1
12	CB on D		G+conf.	colons			3413.	1			1
13	CB on b		b	colons	57,2	1					1
14	CA/CB on E		E	sections/colons	124.134.247.	14	9,3.3315.347.	25	167.1114.11110.	3	42
15	CA on E		F	sections	33,6	1					1
16	CB on b		b	colons	42.1112.148.	5	2111.228.353.	5	8817	1	11
17	CB on b		c	colons	66,4	1					1
18	CB on b		d	colons	1811	1					1
19	CA on E		G+conf.	sections	118.9713.10232.	3	95.224.344	5			8
20	CA on E^G		G	sections	5620.	1					1
21	CB on b		d+conf.	colons	10224	1					1
22	CA on E		a+conf.	sections	46.143.147.	13	214.358.3513.	8	7214.1116.1117.	3	24
23	CA on E^a		a	sections	8111.8114.	2	235.334.364.	9	6814.885.888.	3	14
24	CB on D		D	colons	184.5610.5618.	6	844.8418.10615.	3	8821.	1	11
25	CB on D		E	colons			98.	1			1
26	CB on G		c+conf.	colons			7911	1			1
27	CA on E		d+conf.	sections	114.137.927.	3			687.	1	4

of the preceding cadence as well as the initial note of the opening formula that follows (cases:1,6,7,8,14,16,19,20,21, 22,23,24).

Observations:

a) If the two notes, i.e. the last of the cadence preceding the MeSi and the first of the following opening formula, are of different pitch,a confirmatory neume having exactly the same quantitative and qualitative value as the note it stands above (cases:6,8,19,21,22) is written in rubro above the second note.

If the two notes are of the same pitch, there is no confirmatory neume (cases 1.7.14,16,17,23,24).

b) The formulas 7(A6,B6) and 28 are preceded by the MeSi in case 6 and 7. Elsewhere the same formulas are preceded by either of the MeSi and . This means, I submit, that the MeSi is employed instead of or when the preceding cadence is on G instead of E.

c) In case 7,20 and 23 we observe that at the end of the cadence that precedes the MeSi one or more neumes are added as a kind of tail carrying the melody to the same pitch as the beginning of the following opening formula. In such cases no confirmatory neume is employed. A comparison of these cases with the corresponding ones that have no tail (6,19,22) indicates that this happens when the first syllable of the opening formula has grammatical and metrical accentuation, or at least the latter.

B). MeSi which act forwards only, i.e. which indicates the beginning of the following opening formula but not the end of the preceding cadence(cases:3,4,5,9,10,11,12,13,26,27).

Observations:

a) The above MeSi are used:

i) When cadences on low notes (E,D) are followed by opening formulas beginning on high notes like b or d (cases:9,10,11. 27).

ii) When cadences are followed by opening formulas beginning on a note which cannot be indicated by means of any of the MeSi that act both ways (4,5,12,26).

b) Instance 10 is covered by the remarks above sub A.c.

c) In case 3 we find MeSi $\overset{\cdot\cdot}{\mathcal{Y}}$ +confirmatory neume between a CA on E and opening formula beginning on G. In other similar cases we find MeSi $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$+conf. What deserves attentionis the fact that in the same melody (No 69) the two sections 6-7 and 8-9 are absolutely identical. Nonetheless we find MeSi $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$+conf. at the beginning of the first and MeSi $\overset{\cdot\cdot}{\mathcal{Y}}$ +conf. at the beginning of the second. This observation prompted me to look up these instances in other manuscripts which have the following MeSi in the corresponding positions(69,6. and 69,8):

Sinai 1216 and 1224	($\overset{\cdot\cdot}{\mathcal{Y}}$ + conf., $\overset{\cdot\cdot}{\mathcal{Y}}$ + conf.)
Sinai 1228	(nothing , $\overset{\cdot\cdot}{\mathcal{Y}}$ + conf.)
Sinai 1231[1]	($\overset{\cdot\cdot}{\mathcal{Y}}$, $\overset{\cdot\cdot}{\mathcal{Y}}$)
Sinai 1585[2]	($\overset{\cdot\cdot}{\mathcal{Y}}$, $\overset{\cdot\cdot}{\mathcal{Y}}$ + conf.)

It thus appears that the majority of the manuscripts agree on considering MeSi $\overset{\cdot\cdot}{\mathcal{Y}}$ +conf. as the most appropriate alternative at 69,6 and 69,8.

The MeSi $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$ of MS Sinai 1230 (69,6) is no doubt correct. Nevertheless I submit that MeSi $\overset{\cdot\cdot}{\mathcal{Y}}$ +conf. would be more appropriate, as at (69,8) since formula No. 9 follows, this formula being always preceded by MeSi $\overset{\cdot\cdot}{\mathcal{Y}}$ except for the present case.

d) In case 13 we find the MeSi $\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$ between a CB on b and an opening formula starting on b (57,2). The manuscripts Sinai 1224,1228 and 1231 have no MeSi whereas Sinai 1585 and Jerusalem Photiou 30 have $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}$. Finally Sinai 1216 has $\overset{\cdot\cdot}{\mathcal{Y}}$ +conf.

It thus appears that there are two possibilities:either, to put in no MeSi at all, or to put in one of the two MeSi $\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$+conf. and $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}$. The MeSi $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}$ on b presupposes a descending melodic movement, viz. <u>dcb $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}$ b</u> (see case 16), while MeSi $\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$+conf.presupposes an ascending one (see cases 8,9,10,11). In the instance under investigation (57,1) the melodic movement <u>GGbaGcab</u> may be interpreted as either ascending or descending due to the presence of the note c. I submit that this is the reason why the MeSi $\overset{\cdot\cdot}{\mathcal{Y}}^{\cdot\cdot}$ is preferred in some manuscripts and $\overset{\wedge}{\pi}\overset{\cdot\cdot}{\mathcal{Y}}$ in others.

---

1. MS Sinai 1231 does not in general employ confirmatory neumes
2. It cannot be clearly seen if MS Sinai 1585 has a confirmatory neume at 69,6.

e) In case 4 we find MeSi +conf. between a ClA on E^D and an opening formula starting on G (3,9). This is the sole instance in the melodies under investigation of a MeSi being put after a leading-on cadence.

The manuscripts Sinai 1224 and 1231 have no MeSi. Jerusalem Photiou 30 has +conf. and Sinai 1585 .

It thus appears that the most normal procedure is not to use a MeSi after the leading-on cadence. If, however, the presence of a MeSi is judged indispensable +conf. is the most suitable one. This interpretation is supported by the fact that the opening formula which follows (No. 11) is never preceded by any other MeSi than (though there may be none). As regards the MeSi of MS Sinai 1585 it should be noticed that it cannot be considered an error as it expresses the leading-on cadence.

f) in case 12 (34,13) we find the MeSi +confirmatory ison between a CB on D and an opening formula starting on G (11Z)

None of the manuscripts Sinai 1224, 1228 and Jerusalem Photiou 30 has any MeSi. Sinai 1216 and 1231 have , while Sinai 1585 has .

It thus appears that it is possible to use one of the MeSi and or not to use any at all.

In case like this we must consider the MeSi +conf.(34,13) an error. However, investigating the melodies of MS Sinai1230 I have found it to contain fewer errors than theothers: Consequently the possibility of another solution must be tried.

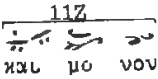
After the MeSi in question there is a confirmatory neume which in the present case is a red ison. We have already noticed (see A.a above) that a confirmatory neume receives the quantitative and qualitative value of the initial note of the formula above which is placed, e.g.

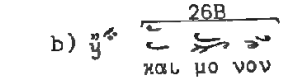
(4,6), (11,4), (13,7), (14,11), (35,10).

But in the present case (34,13) the confirmatory ison that is placed over the initial note is an instead of an . I submit that this means that in the case in question the red ison is not just a confirmatory ison but also a red variant[1].

1. See J. Raasted:Intonational Formulas and Modal Signatures in Byz.musical manuscripts, Subsidia VII, Copenhagen 1966 p.138 note 124

This being so the opening formula that follows the MeSi is susceptible of two readings, viz:

a) 11Z  Gab b a

b) 26B  [2] b b a

It thus appears that the MeSi belongs to the red variant and consequently is no error.

C) MeSi which act backwards only. i.e. which indicate the end of the preceding cadence without indicating the beginning of the formula that follows (cases:2,15,17,18,25).

Observations:

a) In the instance 18 the MeSi occurs between a CB on b and an opening formula starting on d (18,11).

The same reading is found in MSS Sinai 1585, Jerusalem Photiou 30, Paris 265. MS Sinai 1231 has , Sinai 1216 , Sinai 1223 +conf., while Sinai 1224 and 1228 do not give any MeSi.

It thus appears that the position in question may be occupied by: i) ,ii) ,iii) ,iv) +conf.,v) nothing.

Cases (i),(iv) and(v)may be considered normal. It may also be possible to consider (ii) as normal on the supposition that the MeSi acts backwards only, i.e. that it indicates the note b of the preceding cadence. Certainly, as the melodic movement of the cadence is descending the MeSi would suit better, but cannot be considered completely wrong.

The MeSi (case iii) gives rise to great difficulties. If it were followed by a confirmatory neume it might be considered equivalent to the MeSi on G transposed to d. I thus suspect an error. Otherwise I am not able to interpret the case.

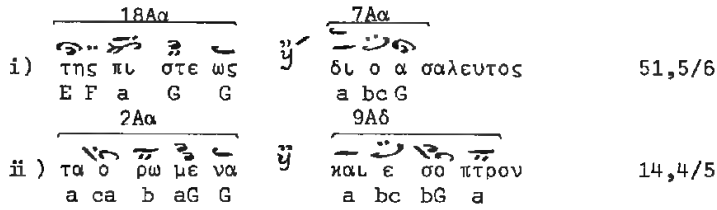
b) In instances 2,15,17 and 25 we find a MeSi which indicates only the end of the cadence placed between a cadence and an opening formula that begins one step higher than the end of the cadence. Thus in case 2 the MeSi is placed between a CB on G and opening formula starting on a. This is odd, as

2. The red variant transforms formula IIZ into 26B

the MeSi used in other comparable cases is $\overset{\cdot\cdot}{y}$ +conf. (cases6-7)

Examples:

	18Aα		7Aα	
i)	της πι στε ως	$\overset{\cdot\cdot}{y}$	δι ο α σαλευτος	51,5/6.
	E F a G G		a bc G	
	2Aα		9Aδ	
ii)	τα ο ρω με να	$\overset{\cdot\cdot}{y}$	και ε σο πτρον	14,4/5.
	a ca b aG G		a bc bG a	



In example (i) the opening formula 7Aδ which comes after the MeSi $\overset{\cdot\cdot}{y}$ invariably starts on an a and is preceded by the MeSi $\overset{\cdot\cdot}{y}$ or [illegible], if any. In example (ii) the MeSi $\overset{\cdot\cdot}{y}$ is followed by the opening formula 9Aδ which regularly ought to start on G and to be preceded by the MeSi $\overset{\cdot\cdot}{y}$ (see melody 27,9). In the present case, however, the stressed syllable is preceded by one syllable only instead of two and for that reason formula 9Aδ starts on a instead of G. But this G, although absent is understood, and I submit that this is why the MeSi $\overset{\cdot\cdot}{y}$ is preferred to $\overset{\cdot\cdot}{y}$ +conf.

From the above considerations and from the investigation of all the cases, i.e. 2,15,17,25 the following conclusion emerge:

There are cases of an opening formula starting one step higher than the end of the preceding cadence.

In such cases a step may be missing for reasons determined by the number of syllables and their accentuation but may yet be understood, in which case the position between the last note of the cadence and the first note of the initial formula will be occupied by the MeSi which would have been used if the step actually existed and the two notes were on the same pitch.

MUSICAL PUNCTUATION

The musical punctuation of the melodies under investigation is resumed in the following table

T a b l e I

Punctuation	after sections	after colons	after units	cadences not justified	total
Comma(,)	1	1	9	1	12
Dot (.)	208	249	85	2	544
Total	209	250	94	3	556

The table shows that the comma occurs on very rare occasions only, usually at the end of units. In one single case it occurs at the end of a section (11,7) and in another at the end of a colon (11,11).

The dot is most frequently found at the end of sections and colons:yet in 85 cases we find it at the end of units. In three further cases (4,4.11,13.23,6) punctuation occurs at points where I cannot see any justification for making a stop.

The melodies under investigation were divided into 208 sections,262 colons and 331 units (the figure 331 represents those units which are not found at the end of sections or colons).

The melodic subdivisions just mentioned are followed by musical punctuation as follows:

T a b l e II

	musical punctuation		no musical punctuation	
Sections (208)	208	100.00%	-	-
Colons (264)	248	93.93%	16	6.00%
Units (331)	86	25.98%	245	74.01%

From the above table it may be gathered that:

a) a section is always followed by a musical punctuation.

b) a colon is followed by musical punctuation in 248 cases (93.93% of all colons).Of the sixteen cases where punctuation is absent five may be explained by reference to the division and metrical form of the text (see:thematismos exo example 3, cases 84,20.92,11;and thematismos eso B1,cases 49,2.72,10. 110,5.pp.77f) but I feel unable to justify the remaining ones (28,6.29,14.33,6.49,15.54,1.54,24.81,3.90,5.92,11.106,6.111,8), unless they be due to errors of the manuscript or to wrong division of the melodies on my part.

c) Units are followed by musical punctuation in 86 of 331 cases only, a percentage of 25.98%. The following table shows the degree in which the musical punctuation corresponds to the grammatical. The edition used for this purpose was "Μηναῖα τοῦ ὅλου ἐνιαυτοῦ", Τόμος Α'(Σεπτέμβριος-Ὀκτώβριος),Rome 1888.

Table III

M=musical punctuation	sections		colons		units		total	
G=grammatical punctuation	cases	%	cases	%	cases	%	cases	%
M + G	202	97.11	162	61.36	39	11.78	403	50.18
M , no G	6	2.88	86	32.57	47	14.19	139	17.31
G , no M	-	-	4	1.51	44	13.29	48	5.97
no G, no M	-	-	12	4.54	201	60.72	213	26.52
Total	208		264		331		803	

Interpretation of table III:

A) Sections:

a) Sections are followed by both musical and grammatical punctuation in 202 cases.

b) As for the six cases in which musical punctuation is not combined with grammatical punctuation, see CA and C1A,pp.63-64.

B) Colons:

a) In 162 cases (61.36%)the colons are followed by both musical and grammatical punctuation.

b) In 86 cases there is only musical punctuation. Investigation into those cases showed that this happens when a CB or a C1B is felt to be needed in the middle of a period which does not have any grammatical punctuation. The point at which the CB or C1B is inserted is chosen with great care to avoid breaking up the unity of the text.

c) In four cases (49,15.54,1.54,24.81,3) there is only grammatical punctuation.
d) In 12 cases (28,6.29,14.33.6.49,2.72,10.84,20.90,5.91.20.106,6.110,5.111,8) we do not find any punctuation at all, whether musical or grammatical.

The cases covered by c) and d) were treated above in connection with table IIb.

C) Units:
a) In 201 cases (60.72%) there is no punctuation at all.
b) In 44 cases (13.99%) there is only grammatical punctuation. Consequently the number of cases with no musical punctuation amounts to 245 (74,01%)
c) In 47 cases (14,19%) we find musical punctuation only .
d) In 39 cases (11,78%) musical and grammatical punctuation occur together. Thus musical punctuation occurs in 86 cases (25.97%) in all.

General conclusion

a) Sections and colons are always followed by musical punctuation. Exceptions amount to no more than 3.38% of all cases.
b) The frequency of musical punctuation after units is only 25.97%.
c) The 50.18% coincidence between grammatical and musical punctuation points indisputably to a close connection between musical punctuation and syntactic structure. Which again means that there is a close connection between musical punctuation and the structure of thought.
d) The fact, however, that on several occasions musical punctuation occurs without grammatical punctuation and vice versa indicates the existence of further factors on which the musical punctuation depends, beyond those of the syntactic and semantic divisions in the text. Such further factors will be the metre of the text, the peculiarities of the formulas and the like.

For the moment I believe that any attempt to solve this problem would meet with failure. Only an investigation into the melodies of other manuscripts and the metre of the texts would seem to have a chance of leading to tenable results[1].

1. See:Jorgen Raasted, some observations on the structure of the Stichera in Byzantine rite, Byzantion XXVIII(1958)pp.529-541.

THE AMBITUS OF THE MELODIES

Modes	Ambitus	Melodies
Deuteros	D - f	55.
	D - e	17.54.56.90.97.102.103.
	D - d	3.4.11.12.13.14.18.24.27.28.29.91.92.
	E - d	57.104.
	D - c	81.
Pl.Deuteros	D - f	65.66.
	C - e	79.
	D - d	36.37.38.49.84.
	C - d	22.35.78.106.
	C - c	21.24.51.64.69.83.
	D - c	9.23.24.48.50.67.95.
Nenano	D - d	16.68.72.88.110
	D - c	111.

Referring to the ambitus of the modes in general the monk Gabriel states that "οἱ κύριοι μέχρι τριῶν φωνῶν προΐασι τὸ ὑψηλότερον, τοῖς δὲ πλαγίοις τοῦτο τὸ χαμηλότερον"[1]. Referring in what follows to the modes Plagal Deuteros and Barys he adds " ὁ πλάγιος τοῦ δευτέρου καὶ ὁ βαρὺς κοινωνοῦσιν ἀλλήλοις κατὰ τὸ μὴ ποιεῖν διπλασμόν· μέχρι γὰρ ἑπτὰ φωνῶν οὗτοι προέρχονται"[2].

The second passage shows that Gabriel does not include the tonic of the mode in his count of the steps. Consequently in the case of the Deuteros mode the highest point to which it ascends is the note e. The same note of the low tetrachord viz. E, is the lowest note of the Plagal Deuteros. We must certainly interpret the word χαμηλότερον as meaning in this place not the lowest note to which the melody descends, but the basis of the Plagal mode.

As appears from the above table the Deuteros as well as the

1. Tardo. op. cit. p.199
2. Tardo. op. cit. pp. 199 -200

the Plagal Deuteros and Nenano modes ascends to the note e. Only in three cases do they reach f. In two of these cases (55,10.66,9) we find the formula 4Δ which in all probability belongs to the Plagal Protos mode and usually occurs in the low tetrachord (DFED)[3]. In the third case (65,10) we find the formula 51M which is very similar to 4Δ.

3. M.M.B. Tr. I, Sept. 47,2 and 62,1.

APPENDIX A

SCALES

The Deuteros, Pl. Deuteros and Nenano modes belong, according to the modern system of Byzantine music, to the chromatic genus, which uses smaller intervals of halftones and larger ones of three-half-tones.

The existence of the chromatic genus during the Middle Ages constitutes one of the greatest problems for research in Byzantine music, which up to the present has not been properly answered.

Since the melodies examined belong to the above modes, it was natural, during the progress of my research, to concern myself with this subject. Unfortunately, the variety and magnitude of problems involved in a formulaic analysis of the melodies gave me no opportunity to deal with this problem as I would have wished.

In spite of this, I tried as far as possible to gather from my material such information as in my opinion might assist in solving this problem. From a consideration of all the information gathered I confirmed that MSi and MeSi could be used as a sound basis from which useful conclusions could be derived. After this, I recorded all the MSi and MeSi in my material. I verified their place and function within the melodies, and, finally, I compared them with corresponding ones from later manuscripts and from the modern system of Byzantine music.

I have avoided mention or criticism of previous theories and ideas on this problem for two reasons:

a) I have not attempted to present a complete study of this subject, since this would have necessitated recourse to a grea-

ter number of sources, and taken up time which, regrettably, I did not have at my disposal.

b) I have attempted to present only such conclusions as were in the course of my research, and, in particular, to indicate the method used, which, as I believe, enables one to confront the problem from a new point of view.

* * *

The surviving theoretical works on Byzantine music agree in stating, as regards the modes, that ascending from the first mode we fond the Authentic modes while we find the Plagal ones by descending. Thus, for example, the Codex Barberinianus Gr. 300 provides the following explanation[1]:

'Από τόν πρῶτον ἦχον ἄν κατέβεις μίαν φωνήν, εἶναι ὁ πλάγιος τοῦ τετάρτου· καί ἀπό τόν πλάγιον τοῦ τετάρτου, ἄν ἀνέβεις μίαν εἶναι πρῶτος· καί πάλιν ἀπό τόν πλάγιον τοῦ τετάρτου ἄν κατέβεις μίαν, εἶναι βαρύς καί ἀπό τόν βαρύν ἄν ἀνέβεις μίαν, εἶναι τέταρτος·καί πάλιν ἀπό τόν βαρύν ἄν κατέβεις μίαν, εἶναι πλάγιος τοῦ δευτέρου καί ἀπό τόν πλάγιον τοῦ δευτέρου, ἄν ἀνέβεις μίαν εἶναι τρίτος· καί ἀπό τόν τρίτον ἄν κατέβεις μίαν εἶναι πάλιν πλάγιος τοῦ δευτέρου· καί ἀπό τόν πλάγιον τοῦ δευτέρου, ἄν κατέβεις μίαν, εἶναι πλάγιος τοῦ πρώτου· καί ἀπό τόν πλάγιον τοῦ πρώτου ἄν ἀνέβεις μίαν εἶναι δεύτερος· καί ἀπό τόν δεύτερον, ἄν ἀνέβεις μίαν εἶναι τρίτος· καί ἀπό τόν τρίτον ἄν ἀνέβεις μίαν εἶναι τέταρτος· καί ἀπό τόν τέταρτον ἄν ἀνέβεις μίαν εἶναι πρῶτος.

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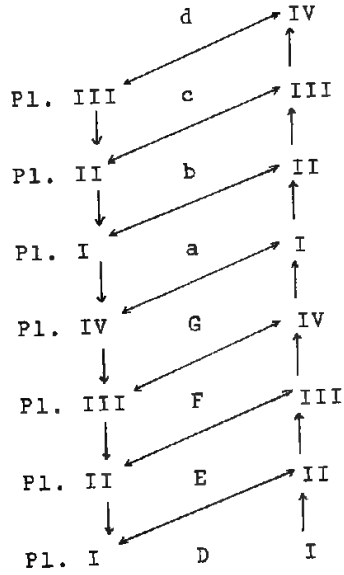
1. Lorenzo Tardo, L'Antica melurgia bizantina, Grottaferata (1938) p.158. See also Γρ. Στάθη, 'Η παλαιά βυζαντινή σημειογραφία καί τά προβλήματα τῆς μεταγραφῆς της εἰς τό πεντάγραμμον, Βυζαντινά, Τόμος 7ος, Θεσσαλονίκη 1975,p.203.

The above description yields the following diagram :



Referring to the problems of transcribing Byzantine melodies into Western notation Jorgen Raasted[1] states that:"Transcriptions of Byzantine melodies into western notation are based on the assumption that medieval Byzantine chant consists of tones and half-tones only. The diatonic character of Byzantine music has been postulated by WELLESZ and TILLYARD from the early days of their studies, and their position -which lies behind such work as that done in Monumenta Musicae Byzantinae and that of the Grottaferrata school- has since then found support in observations made by a number of scholars".

Now, in my opinion the succession of modes on the degrees of the diatonic scale shows the position of the modes, but, not their scales[2]. For instance, the Protos mode occurs between the Plagal Tetartos and Deuteros modes, but how the intervals of its scale were arranged or according to what system (tetrachord pentachord,octave...) it proceeds is not at all clear. In all probability this was indicated by means of the ἀπήχημα.

Consequently the possibility of the existence of a chromatic

1. Jørgen Raasted, Intonation Formulas and Modal Signatures in Byzantine Musical Manuscripts, Copenhagen 1966. p.7
2. Χρυσάνθου, Θεωρητικόν μέγα τῆς μουσικῆς, Trieste, 1832 p.130.

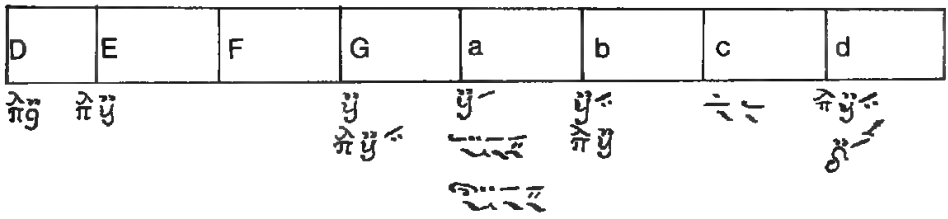
and an enharmonic genus before the reformation of 1818 must be investigated with due attention.

In an "Anthology"which must have been written at the beginning of the 18th c. there is a doxology by Petros Lampadarios in the Plagal Deuteros mode.[1] The same doxology is found in more recent books of Byzantine music, transcribed according to the new system and in the chromatic Plagal Deuteros mode.[2] This demonstrates that the chromatic Plagal Deuteros mode was in use already at the time of Petros Lampadarios (18th c.) and that the distinction into three genera was not an invention due to the three teachers of the new method.

But the fact that Petros Lampadarios writes melodies in a chromatic genus must, I submit, mean that the genus in question was already recognized at the time and that its roots must be sought in a more ancient period. As a matter of fact, the Προπαιδεῖαι τῶν παπαδικῶν and other theoretical writings on Byzantine music contain references to the existence of " "phthorika mele" already from the 12th c. and onwards, and they add tables of the "phthoric"signs.[3]

With this background in view I have tried to ascertain whether the melodies under consideration contain elements which prove, or at least indicate, that the modes in question were chromatic at the time. The results of my investigations are presented below.

The use of MeSi in the investigated melodies of the modes Deuteros,Plagal Deuteros and Nenano appears from the following table:

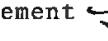
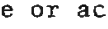


1) Ἀνθολογία τῆς μουσικῆς περιέχουσα κατὰ τάξιν συλλογήν τινα μαθημάτων τῶν ἀναγκαιοτέρων τῆς ἐκκλησιαστικῆς ἀκολουθίας (in the possession of J. Raasted),f. 108v-113r

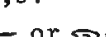
2) Πανδέκτη, Ἐν Κωνσταντινουπόλει (ωνά):Τόμος 2 pp.687-695.

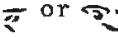
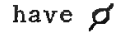
3) Γρ. Στάθη op. cit. pp. 199-201

The table shows that:

a)The named modes use a common system of MeSi having as basic points of support i)the element ψ (developed from the minuscule β and ii)the element  or  i.e.the Nenano.

b)The ψ ,either alone or accompanied by the π̄λ(=πλάγιος), occurs on the notes E,G,b.

c)The element or  is always found on an a, where later manuscripts have ♯ (the phthora of the Nenano).

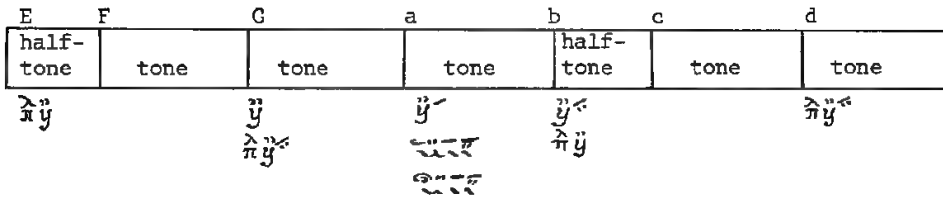
d)The remaining MeSi,viz. π̄ψ (12 cases),  (4 cases),and  (1 case) belong to uther modes and probably introduce some kind of modulation into these modes.

In view of the above observations I shall advance two hypotheses:

a)The scale of the modes Deuteros,Plagal Deuteros and Nenano is diatonic.

b)The element ψ whether used by itself or in combination with the abbreviation π̄λ(=πλάγιος) has the same implication.

If these hypotheses are accepted the scale can be tabulated as follows,with the MeSi placed at the corresponding positions:



It appears from the above figure that the element ψ is found on E and b, that is on degrees of the scale above which there is a half-tone.

The same element, ψ , is furthermore encountered on G, but

the interval G-a is a tone. Given that this element, according to hypothesis (b) carries the same implication wherever it occurs, the interval G-a must be a half-tone. The conclusion is supported by the fact that on a we find the MeSi which in later manuscripts takes the form , and today the interval under it requires a half-tone.

This being so we must, in order to create the half-tone, accept either G-sharp or a-flat.

First possibility: G-sharp

Accepting G-sharp we must correspondingly have d-sharp in the high tetrachord. The scale will then be:

Scale A:

E	F	G♯	a	b	c	d♯	e
half-tone	three half-tones	half-tone	tone	half-tone	three half-tones	half-tone	

This scale consists of two similar tetrachords E-a and b-e separated by the tone a-b.

A comparison[1] of this scale with that of the Pl. Deuteros of the modern system of Byzantine music[2] yields the following results:

Πα	Βου	Γα	Δι	Κε	Ζω	Νη	Πα
half-tone 6	three half-tones 20	half-tone 4	tone 12	half-tone 6	three half-tones 20	half-tone 4	
E	F	G♯	a	b	c	d♯	e

a) The arrangements of the intervals of the two scales coincide completely, and so do the arrangements of the tetrachords.

b) The element , which in the modern system received the form , occurs in exactly the same position, i.e. Πα(=E). Γα(=G♯), Κε(=b).

---

1. The comparison is based on the half-tones, tones and three half-tones, not on the μόρια or κόμματα* of the modern system as this would be impossible.

*. See Δ.Γ. Παναγιωτοπούλου, Θεωρία καὶ πρᾶξις τῆς Βυζαντινῆς ἐκκλ. μουσικῆς, Athens 1947, p.50.

2. This scale starts from Πα(=D). To facilitate the comparison it is transposed upwards by one tone, thus Πα(=E), Βου(=F), Γα(=G), Δι(=a), Κε(=b), Ζω(=c), Νη(=d), Πα(=e).

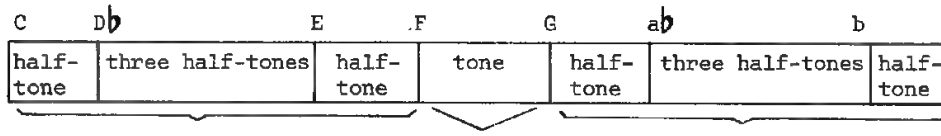
c) The element [illegible] (=ø) is likewise found in the expected position, i.e. on a.[1]

Second possibility: a-flat

Accepting a-flat we must correspondingly have D-flat in the low tetrachord. The scale will then be:

S c a l e B :

C	D♭	E	F	G	a♭	b	c
half-tone	three half-tones	half-tone	tone	half-tone	three half-tones	half-tone	



As the figure demonstrates, the result is a chromatic scale similar to scale A but placed one third lower. This means that a chromatic scale is constructed which consists of two tetrachords, C-F and G-c, separated by the tone F-G.

Conclusions

a) It appears from what has been said that the scale of the modes Deuteros, Pl. Deuteros and Nenano is chromatic.

b) Whether a melody of the modes in question is transcribed in accordance with scale A or with scale B (lowered by one third) the result is the same.

The above conclusions presuppose the original hypothesis: that the element y whether used alone or in combination with the $\overset{\lambda}{\pi}$ (=πλάγιος) has the same implication wherever it occurs.

For this reason I directed my investigations towards manuscripts later than Sinai 1230 to see if they could provide more precise information.

For this purpose I used the manuscript Sinai 1301 (16th-17th c. according to Benesevic, Catalogus III,1. Petrograd 1917). This manuscript contains, among other things, the stichera of the month of September with melodies that appear to be virtually the same as those of the manuscript Sinai 1230. I have written down the MSi and MeSi of the melodies 11,12,13,14,16,21,22 and 23 of ms Sinai 1230 and next,

1. In the modern scale of the Pl. Deuteros mode the ø occurs on Βου(=F),Ζω(=c)and Πα (=e). In the melodies investigated there are no MeSi on these three pitches, and it is therefore not possible to compare them with their modern parallels.

Sinai 1230.'Εκ ρίζης ἀγαθῆς (11) Sinai 1301. " " " "	b b	E d E d	G G G G	E G	G G G G	b b b b	G G G G		
Sinai 1230. Τό μνημόσυνόν σου (12) Sinai 1301. " " " "	G b	E E E F	E E	G G b b	E E E E	G G	b b		
Sinai 1230.'Η τῶν λευφάνων (13) Sinai 1301. " " " "	b b	G G G G	E E E E	E d E d	G G G G				
Sinai 1230.'Ηγάπησας θεοφόρε (14) Sinai 1301. " " "	b	G G	E a E a	G G G G	E a E a	b b b b	G G G G	G b	
Sinai 1230. Θεία χάρις (16) Sinai 1301. " " "	 a	G G	b b	G G G G	E E E E	G G			
Sinai 1230.'Ιερεύς ἐννομώτατος(21) Sinai 1301. " " "	G G	G G G G	E a E a	G G G G	?	b b b b	G G	G G G G	G G
Sinai 1230. Βήματι τυράννου (22) Sinai 1301. " " "	F E	E G	G a	b b b b	G G				
Sinai 1230. Βάσιμον χρηπῖδα (23) Sinai 1301. " " "	E G	a a	G G E E	E G	G G G b				

below them the corresponding ones of Sinai 1301. I have left an empty space at the points at which one of the manuscripts does not have any MSi or MeSi. In front of each MeSi I have written the cadential note of the preceding cadence and after each MeSi I have written the initial note of the following opening formula.

Observations

The table shows that:

a) between E-E, G-G, b-b, MeSi occur as follows:

1) Sinai 1230 E $\overset{\lambda}{\pi}\overset{\ddot{y}}{y}$ E. G $\overset{\ddot{y}}{y}$ G. b $\overset{\lambda}{\pi}\overset{\ddot{y}}{y}$ b

22) Sinai 1301 E $\overset{\ddot{\sim}}{\sim}$ E. G $\overset{\ddot{\sim}}{\sim}$ or $\overset{\ddot{\sim}}{\sim}$ G. b $\overset{\ddot{\sim}}{\sim}$ or $\overset{\ddot{\sim}}{\sim}$ b[1]

b) In Sinai 1230 $\overset{\lambda}{\pi}\overset{\ddot{y}}{y}$ occurs on E and on b, whereas $\overset{\ddot{y}}{y}$ is only found on G.

c) In Sinai 1301 $\sim$ (=$\overset{\ddot{y}}{y}$) occurs on E, on G, and on b. Furthermore, between G-G or b-b we find $\overset{\ddot{\sim}}{\sim}$ in some cases, but $\overset{\ddot{\sim}}{\sim}$ in others.[2]

In my opinion these facts show that the element y has the same implication wherever it is found, i.e. it means that the interval above the degree on which it is found must be a half-tone. This view is further corroborated by the use of the element in question in the modern system of Byzantine music:

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1. The MeSi $\overset{\ddot{\sim}}{\sim}$ and $\overset{\ddot{\sim}}{\sim}$ must be interpreted as expressing a melody as follows:
   G $\overset{\ddot{\sim}}{\sim}$ G =b-a-G. G $\overset{\ddot{\sim}}{\sim}$ G =G-F-E-F-G.
   b $\overset{\ddot{\sim}}{\sim}$ b =d-c-b. b $\overset{\ddot{\sim}}{\sim}$ b =b-a-G-a-b.

2. Similar instances occur a) in ms Sinai 1237(17th c. according to Benesevic, Catalogus III,1. Petrograd 1917), in which the $\overset{\ddot{\sim}}{\sim}$ and $\overset{\lambda}{\overset{\ddot{\sim}}{\sim}}$ are sometimes found between E-E and at other times between G-G. For example:
   f. 2r. Ἐκ ρίζης ἀγαθῆς...ἐνδιαίτημα G $\overset{\lambda}{\overset{\ddot{\sim}}{\sim}}$ G.
   f. 2r. Τό μνημόσυνόν σου...πάτερ Συμεών E $\overset{\ddot{\sim}}{\sim}$ E..καλός G $\overset{\ddot{\sim}}{\sim}$ G
   f.11r. Ἱερεύς ἐννομώτατος...Ἄνθιμε E $\overset{\ddot{\sim}}{\sim}$ E..μυστήρια G $\overset{\lambda}{\overset{\ddot{\sim}}{\sim}}$ G
   f.14r. Βήματι τυράννου...ἐκραύγαζες...E $\overset{\ddot{\sim}}{\sim}$ E.
   b) In ms Athens 891 (A.D1787), in which MeSi $\overset{\ddot{\sim}}{\sim}$ is found between E-E,G-G and b-b;MeSi $\overset{\lambda}{\pi}\overset{\ddot{\sim}}{\sim}$, $\overset{\ddot{\sim}}{\sim}$, $\overset{\ddot{\sim}}{\sim}$ are not used. The phthora $\varnothing$ is found both on a and D.
   c) In ms Athens 903 (A.D1782), in which MeSi $\overset{\ddot{\sim}}{\sim}$, $\overset{\lambda}{\overset{\ddot{\sim}}{\sim}}$, $\overset{\ddot{\sim}}{\sim}$ are found on E, or G, or b. MeSi $\overset{\ddot{\sim}}{\sim}$ is found only on G or b.

Scale of Deuteros mode.

half-tone	three half-tones	half-tone	tone	half-tone	three half-tones	half-tone

Scale of Plagal Deuteros mode.

half tone	three half-tones	half-tone	tone	half-tone	three half-tones	half-tone

It is evident from the above scales that the element (=) invariably occurs on degrees above which there is a half-tone.

After all the above observations the conclusion must be drawn that the melodies of the modes Deuteros, Plagal Deuteros and Nenano under investigation are chromatic.

An example is presented below of a transcription of melody No.13 of the Deuteros mode according to the A chromatic scale (see above p. 101), i.e. $C^{\#}$-D -E -F -$G^{\#}$-a -b -c -$d^{\#}$-e [1]

1 H των λει φα νων σου θη κη·
b b a $G^{\#}$a bc a ba $G^{\#}$

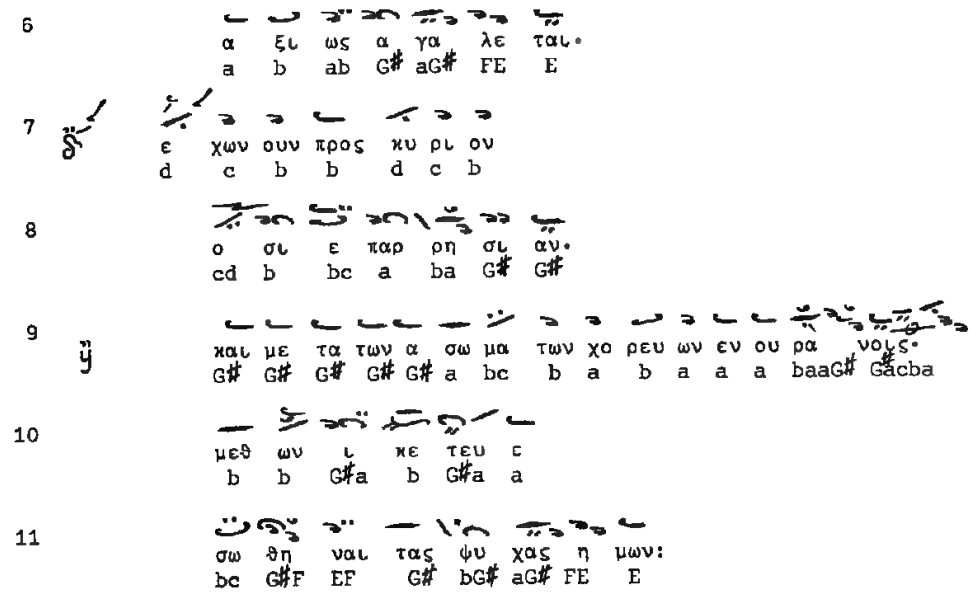
2 παν ευ φη με πα τερ,
$G^{\#}$ b a ba $G^{\#}$ab a

3 πη γα ζει ι α μα τα·
a b ab $G^{\#}$ a$G^{\#}$ FE E

4 και η α γι α σου φυ χη
EF D $G^{\#}$ b a $G^{\#}$ ca bcba

5 αγ γε λοις συ νου σα,
$G^{\#}$ b a ba $G^{\#}$ab a

1. According to the modern system of Byzantine music this scale when it descends two steps below the tonic (E) it descends diatonically i.e. $C^{\#}$ -D-E corresponding to $G^{\#}$ -a-b in the upper tetrachord.

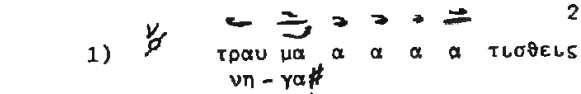


Observations :

A) In line 4, there is the three-tone interval D-G$^{\#}$, which, according to western European music theory, is forbidden. In the case of the transcription of all the melodies under investigation in the A chromatic scale, this interval is met with 232 times. Of the other three-tone intervals, i.e. a-d$^{\#}$ and F-b, the first is met with 32 times,and the second not at all.

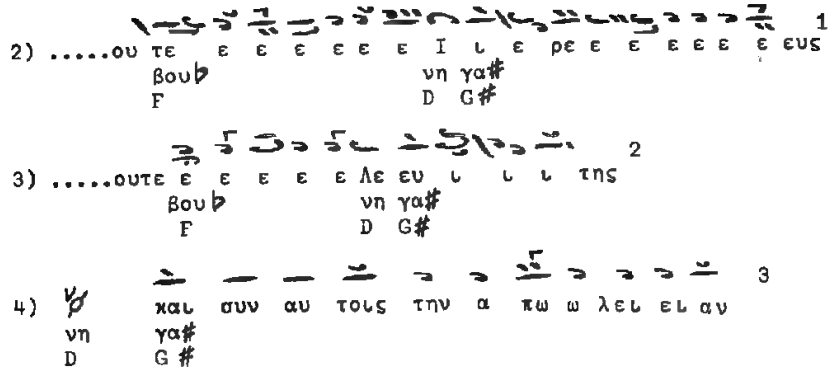
The above evidence seems at first to contradict the previous conclusion that the melodies are chromatic. But careful research into the melodies of the chromatic modes of modern Byzantine music proves that these three-tone intervals are very common.

Examples: a) Interval Νη-Γα$^{\#}$ (=D-G$^{\#}$)[1]



[2]

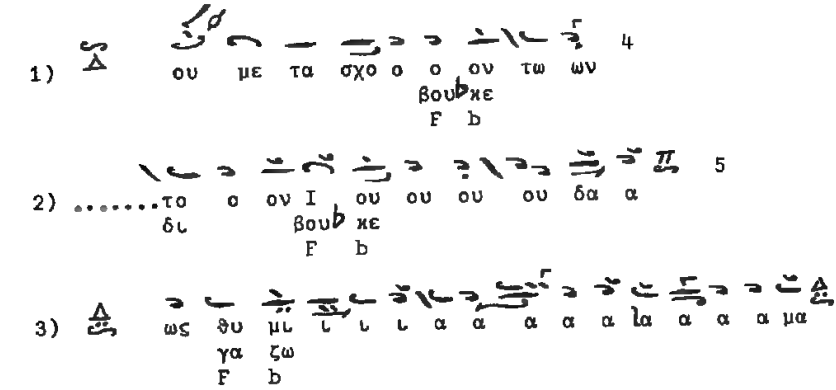
1. 3,4.3,6.3,9.3,12.4,7.11,8.11,12.12,7.13,4.14,3.14,7..... in all 232 cases.
2. Ληστὰς λογισμοῖς...,Στιχηρὸν ἰδιόμελον τῆς Δ΄Κυριακῆς τῶν Νηστειῶν, ἦχος , Μουσικὸς Πανδέκτης (Ζωή), Τόμος Ζ΄(Τριῴδιον), Athens 1937, p.100.



b) Interval βου^{b}-κε (=F-b)

This interval was not found in the melodies under investigation. However it is found in a great number of cases in chromatic melodies of the modern Byzantine music system.

Examples :



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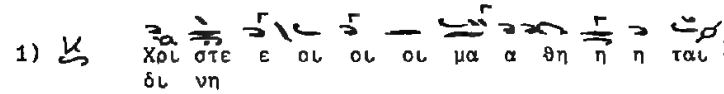
1. ibid. p.100
2. ibid. p.101
3. Γέννημα ἐχιδνῶν...,Δοξαστικόν εἰς τόν ἑσπερινόν τῆς Μ. Πέμπτης, ἦχος ,ibid. p.197.
4. Μετά τήν εἰς Ἅδου κάθοδον...Ἑωθινόν Ι', ἦχος , Ἀναστασιματάριον(Ζωή), Athens 1961, p.283
5. Βουλευτήριον Σωτήρ..., Κάθισμα,ἦχος , Μουσικός Πανδέκτης(Ζωή), Τόμος Ζ'(τριῴδιον), Athens 1937,p.160.
6. Κατευθυνθήτω ἡ προσευχή μου...ἦχος , Μουσικός Πανδέκτης (Ζωή), Τόμος Α, Athens 1956, p.30. This example (6) belongs to a melody of the Deuteros mode and is chanted based on Δι according to scale B (see above p.102).

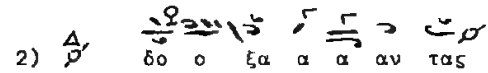
c) Interval Δι-νη♯ (=a-d♯)[1]

This interval, however, was found in 32 cases, in the melodies under research although in the modern system, as far as I know, it is not found at all. Instead of this, in the melodies of Pl. Deuteros mode, it is found in a great number of cases as the interval Δι-νη (=a-d). This originates from the previous interval i.e. Δι-νη♯, with the placing of a diatonic phthora on Δι(♮) or on νη(♯). In this case the chromatic tetrachord κε-πα (=b-e) is changed into a diatonic one.

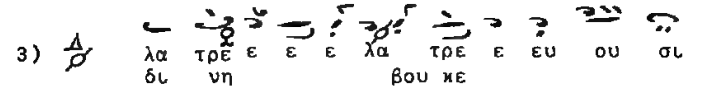
Examples:

1) 

2

2) 

3

3) 

4

The above examples show that the interval Δι-νη(=a-d) would reasonably justify the belief that it was a Δι-νη♯ (=a-d♯) if there were no phthorai which define the kind of the tetrachord. The lack of phthorai in the melodies under investigation creates much difficulty in defining clearly the type of the aforementioned interval, as well as of many other intervals.

For example, the Doxology of Petros Lampadarios in the Pl. Deuteros mode, which is found in both the old and the modern method, can show us the difficulty of defining the type of intervals.

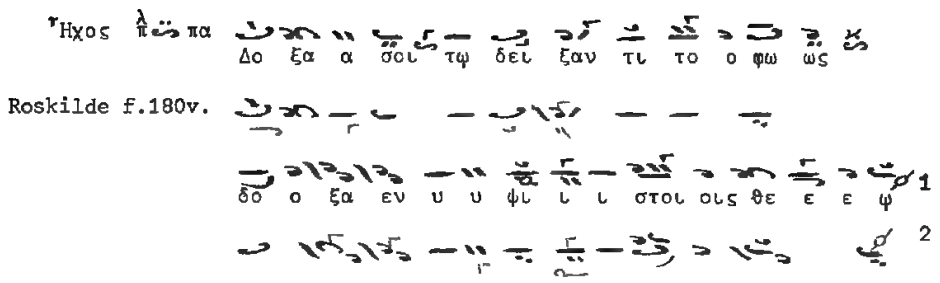
---

1 3,2.3,12.4,2.14,7.16,4.17,10...in all 32 cases.

2) Μετά τήν εἰς Ἅδου κάθοδον..., Ἐωθινόν Ι΄, Ἀναστασιματάριον (Ζωή), Athens 1961.p.282.

3) Ἡ ὄντως εἰρήνη σύ Χριστέ..., Ἐωθινόν ΣΤ΄, ibid.p.281.

4) Νῦν αἱ δυνάμεις τῶν οὐρανῶν..., χερουβικόν τῶν προηγιασμένων, Πέτρου Λαμπαδαρίου, ἦχος πα πα, Μουσικός Πανδέκτης (Ζωή), Τόμος Α΄ Athens 1958, p.64.



As one can see from the modern melody above, the diatonic phthora of Δι(♮) is placed over the syllable (ἐν ὑ) ψι (στοις) and because of the phthora, the chromatic tetrachord κε-πα (=b-e) becomes diatonic until the syllable (θε) ῳ where, because of the chromatic phthora of Δι (ø) the melody returns to the chromatic genus.

As it appears from the old melody below the modern one, the phthora ♮ does not exist; there is only the phthora ø at the end of the musical line. Whether this phthora ø indicates that the previous line should be chanted diatonically, or not, can not be ascertained. But if it should be chanted diatonically it still is not clear from what point the diatonic modulation must begin. I think that the solution to this problem can be obtained by collecting melodies of the old system transcribed into the modern one and then comparing them. Only in this way will it be possible to find those places in the melodies where such modulation occurs.

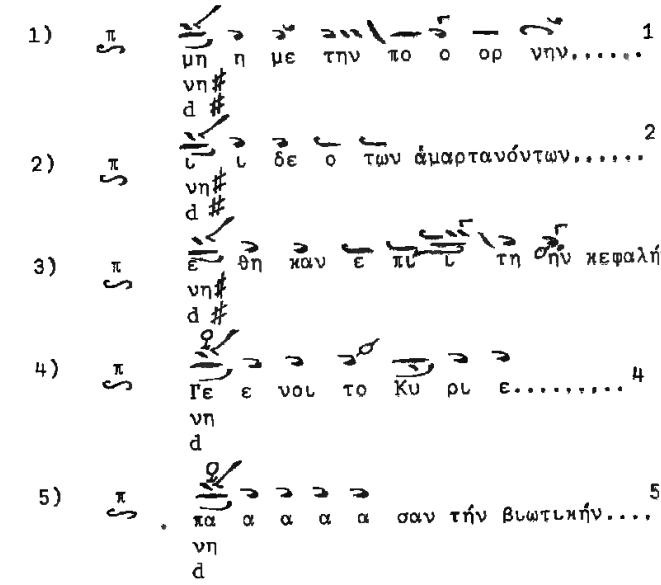
From the above, we can conclude that the existence of three tone intervals, i.e. D-G♯, F-b, a-d♯ does not rule out the conclusion that the melodies are chromatic.

B) In the line 7, we find the MeSi δ, followed by an opening formula starting from d. The problem here is to determine whether the note d is natural of d♯. In the modern system there are cases where either exists.

---

1. Πανδέκτη, ἐν Κωνσταντινουπόλει (αωνα΄), Τόμ.2, p.687.
2. Ἀνθολογία τῆς μουσικῆς περιέχουσα κατά τάξιν συλλογήν τινα μαθημάτων τῶν ἀναγκαιοτέρων τῆς ἐκκλησιαστικῆς ἀκολουθίας (in the possession of J.Raasted), f.108v.

Examples:



From the above examples, it appears that after a chromatic cadence on πα (=E) and a chromatic MeSi π an opening formula can follow starting with νη#(=d#) or with νη(=d). In the second case over the νη(=d) a diatonic phthora (♎) is placed.
In line 7 of melody No. 13, the diatonic phthora does not exist (because as we previously said, in the melodies under research phthorai in general are not found) but the diatonic MeSi δ do exist.

Because of this, I have transcribed the opening note as well as all the other d^S of lines 7 and 8 as d natural instead of d#.

In relation to the solution of this problem the same is true for the modulations as was previously asserted at the end of observation A.

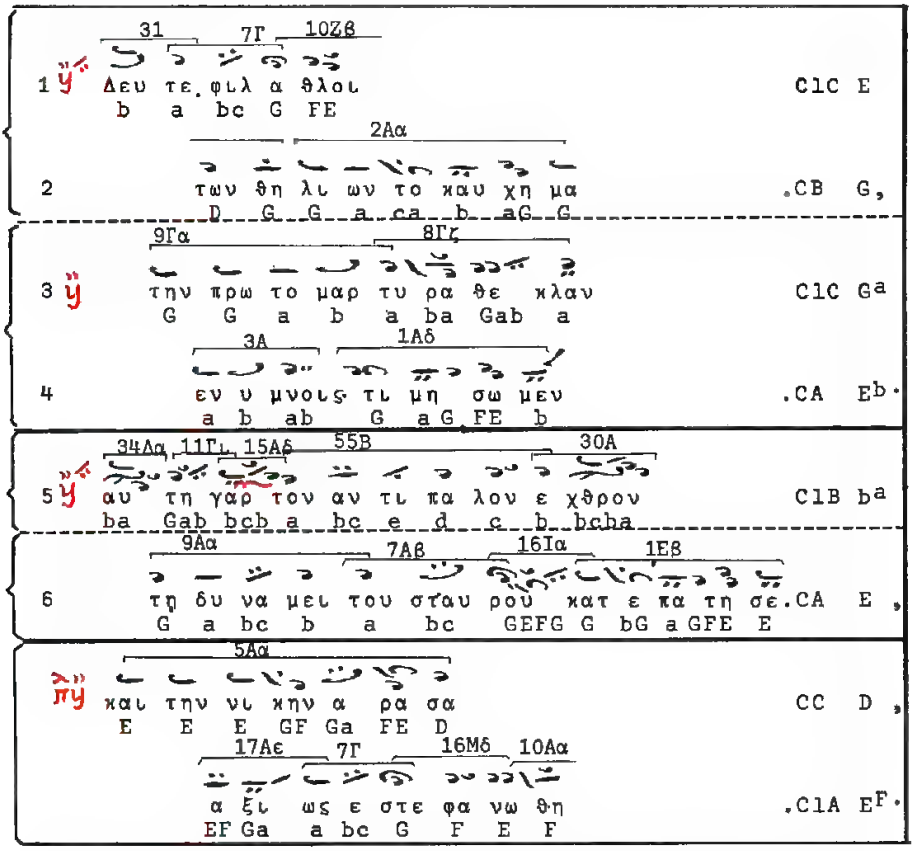
---

1. Ἡ ἀπεγνωσμένη διά τόν βίον..., Ἰδιόμελον Μ. Τετάρτης, Ἦχος πλ. πα, Μουσικός Πανδέκτης (Ζωή), Τόμος Ζ, Athens 1937 p. 174.
2. Ἠβεβυθισμένη τῇ ἁμαρτία..., Ἰδιόμελον Μ. Τετάρτης, Ἦχος πλ. πα, ibid π. 172.
3. Ἐξέδυσαν τά ἱμάτιά μου..., Δοξαστικόν Μ. Παρασκευῆς, Ἦχος πλ. πα, ibid. p. 227.
4. Δοξολογία, Ἦχος πλ. πα, Ἀναστασιματάριον (Ζωή), Athens 1961, p. 285.
5. Χερουβικόν Γρηγορίου Πρωτοψάλτου, Ἦχος πλ. πα, Μουσικός πανδέκτης (Ζωή), Τόμος Δ, Athens 1968, p. 64.

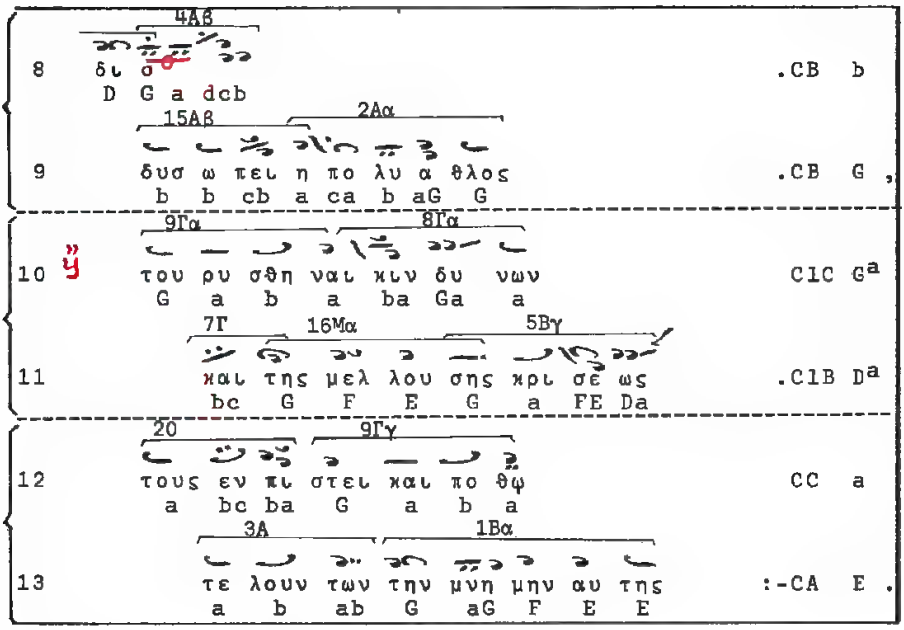
For the transcription of all the melodies into the chromatic genus, other problems certainly exist which cannot however be solved at present. The solution to these problems presupposes the transcription of much more material from the old into the new Byzantine notation and detailed comparison of the results. The lack of necessary sources especially from the modern system of Byzantine music, but also the limited time available to me does not permit me to continue research on this subject. I hope, however, that not only I especially should return to this subject but also that other researchers should deal with finding a definite solution to this problem.

A P P E N D I X B

Analysis of melody No. 90 of the Deuteros mode.*



* This melody was selected by lot from among all the 56 melodies.



A) Text

The contents of the text indicate a division into three periods:

First period (lines 1-4) Christians with an interest in contests are invited to honour the protomartyr Thekla.

Second period (lines 5-7) Thekla deserves honour for two reasons:

a) She conquered the enemy, b) her victory was recognized and rewarded.

Third period (lines 8-13) As a winner and holder of a prize from God she is in a position to intercede with him to save from danger and destruction the faithful who celebrate her memory.

Each period ends with a high point or a full stop.

B) Melody

The melodic division of the sticheron coincides with that of the text. That is to say, there are three musical sections of which only the second is subdivided into smaller sections, i.e. 1-4, (5-6, 7), 8-13.

Details:

First Period (1-4)) Constituted of four units joined in pairs

so as to form two colons, i.e(1-2)+(3-4). Together the two colons form one section (1-4).

The first colon (1-2) consists of two units, the first ending in C1C on E, the second in CB on G.

The second colon (3-4) consists likewise of two units, the first ending in C1C on G^a, the second in CA on E^b .

The splitting of the section into two colons(1-2,3-4) may at first sight seem ill-conceived as it spoils the unity of the text. However, on closer inspection it appears that the melodist had his reasons for doing so, viz. a) because a CB cadence on G was a necessity at the end of the second melodic line,and b) because a temporary lingering on the phrase "the pride of womankind" (τῶν θηλειῶν τό καύχημα) arouses the curiosity of the audience about the person who is"the pride of womankind"

Both colons are preceded by a MeSi and followed by a musical dot.

Second Period (5-7) Constituted of four units joined in pairs so as to form two sections (5-6,7).

The first section consists of two colons (5 and 6), the first ending in C1B an B^a, the second in CA on E. In spite of the absence of the expected musical dot at the end of the first colon the section was divided into two colons because the following melodic line (6) begins with the formula 9Aα which is normally found to open colons. Furthermore the melodic line 9Aα-7Aβ-16Iα-1Eβ is often found to constitute a colon by itself (see 3,5.4,4/5.33.13/14. etc.).

The second section consists of two units, the first ending in CC on D, the second in C1A on E^F.

The second period was divided into two sections and not into two colons for two reasons a) at the end of the first section (5-6) there is a CA cadence on E such as usually occurs at the end of sections, and b) the period in question comprises two events happening at different places and times. First that is, the victory over the enemy, located on Earth and taking place during Thekla's earthly life, and second her receiving which takes place in Heaven as she appears before God.

Third Period (8-13)Constituted of six units which form four colons (8,9,10-11,12-13) and, in combination, one section

(8-13).

The two first colons (8 and 9) could be regarded as one. The division was made because of the occurrence at the end of the first colon of the thematismos exo which has in all cases been regarded as forming a colon by itself. The third colon (10-11) consists of two units, the first ending in C1C on G^a the second in C1B on D^a. The last colon consists likewise of two units, the first ending in CC on a, the second in CA on E.

General Observations

A) Signatures

a) The melody begins with +b because the first syllable of the text carries both a grammatical and a metrical accent. (See MSi of the Deuteros mode pp. 80f).

b) At the beginning of the section and colons a MeSi occurs except for such cases in which a leading-on cadence precedes (6,8,12). Further, there is no MeSi at the beginning of colon 9 which is preceded by the thematismos exo; this is due to the metrical shape of the text (see thematismos exo, case 2, p. 78).

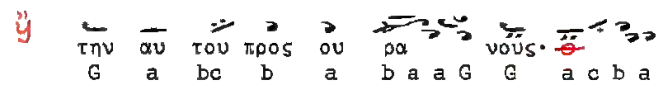
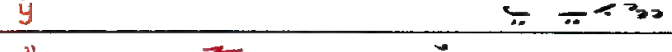
B) Musical punctuation

Save for a single instance (line 5) all sections and colons are followed by a musical dot.

A P P E N D I X C

Medieval and Post-Medieval Renderings of a Few Phrases (11th-12th cent.)

Σήμερον τό φυτόν τῆς ζωῆς.....

					A.D.1365
Sinai 1230.17v.	68,8		την G	αυ a	του bc	προς b	ου a	ρα b a a G	νους· G	a c b a	
Saba 610.14r.											11th cent.
Saba 361.13r.											11th/12th cent?
Athens 883.18v.											12th cent.
Athos,Vatopedi 1492.11v.											A.D.1242
Ierusalem,Photiou 30.12v.											13th cent.
Sinai 1484.8r.											13th cent.
Sinai 1487.6v											14th cent.
Paris 265.10v.											14th cent.
Sinai 1237.43v											17th cent.
Athens 896.19v.											17th cent.
Athens 910.36v.											17th cent.
Athens 903.27r.											A.D.1782
Athens 891.13v.											A.D.1787

Σήμερον τό φυτόν τῆς ζωῆς....

	κατ a	αγ a	γελ b	λευ ab	αν G	υ aG	φω FE	σιν· F	δι D	ης· G a d c b	
Sinai 1230.17v. 68,9/10											A.D.1365
Saba 610.14r.	[			[				]			11th cent.
Saba 361.13r											11th/12th?
Athens 883.18v.											12th cent.
Athos,Vatopedi 1492.11v.											A.D.1242
Ierusalem,Photiou 30.12v.											13th cent.?
Sinai 1484.8r.											13th cent.
Sinai 1487.6v.											14th cent.
Paris 265.10v.											14th cent.
Sinai 1237.43v.											17th cent.
Athens 896.19v.											17th cent.
Athens 910.36v.											17th cent.
Athens 903.27v.											A.D.1782
Athens 891.13v.											A.D.1787

Νέου φυτόν καθάπερ ἐλαίας.....

	δι	α	μαρ	τυ	ρι	ου	ευ	λο	γη	σε	σε	χυ	ρι	ος·	
	FE	D	G	G	ah	b	b	đ	cb	a	ca	b	aG	G	
Sinai 1230.5v. 18.6/7															A.D.1365
Saba 610.3r.															11th cent.
Saba 361.4r.															11th/12th?
Athens 883. 5r.															12th cent.
Athos,Vatopedi 1492.4r.															A.D.1242
Ierusalem,Photiou 30.4r.															13th cent.
Sinai 1484.															13th cent.
Sinai 1487.															14th cent.
Paris 265.3v.															14th cent.
Sinai 1237.10v.															17th cent.
Athens 896.5v.															17th cent.
Athens 910.															17th cent.
Athens 903.6v.															A.D.1782
Athens 891.3v.															A.D.1787

Νέον φυτὸν καθάπερ ἐλαίας.....

Sinai 1230.3r. 18,9														A.D.1365
	εν G	τρυ a	φων b	της a	θει bc	ας GF	α EF	γαλ G	λι bG	α aG	σε FE	ως E	
Saba 610.3r													11th cent.
Saba 361.4r													11th/12th?
Athens 883.5r													12th cent.
Athos,Vatopedi 1492.4r.													A.D.1242
Ierusalem,Photiou 30.4r													13th cent.
Sinai 1484.													13th cent.
Sinai 1487.													14th cent.
Paris 265.3v.													14th cent.
Sinai 1237.10v.													17th cent
Athens 896.5v													17th cent.
Athens 910.													17th cent.
Athens 903.6v.													A.D.1782
Athens 891.3v													A.D.1787

UNIVERSITÉ DE COPENHAGUE

CAHIERS DE L'INSTITUT DU MOYEN-ÂGE GREC ET LATIN
publiés par le directeur de l'Institut

- 23 -

GEORGE AMARGIANAKIS

AN ANALYSIS OF STICHERA IN THE DEUTEROS MODES

The Stichera Idiomela for the Month of September
in the Modes Deuteros, Plagal Deuteros, and Nenano
Transcribed from the Manuscript Sinai 1230 (A.D.1365)

PART II

Copenhague 1977

A part of the printing costs of this
issue of 'Cahiers' has been defrayed by
the Greek State Scholarship Foundation

Stougaard Jensen/København
Un 55-3

MELODIES OF THE STICHERA IDIOMELA FOR SEPTEMBER

56 melodies for the month of September are presented below. Of these 25 belong to the Deuteros mode, 25 to the Plagal Deuteros mode and 6 to the Nenano mode.

They have not been numbered consecutively (1,2,3,4 etc.). The numbers employed are those of the edition by Egon Wellesz, "Die Hymnen des Sticherarium fur September, Vol. I, Copenhague 1936" which also contains other stichera , belonging to the same month but to other modes.

The melodies have been divided into musical lines which are mumbered consecutively. Thus, for instance, 49,6 will mean "melody No. 46, line 6".

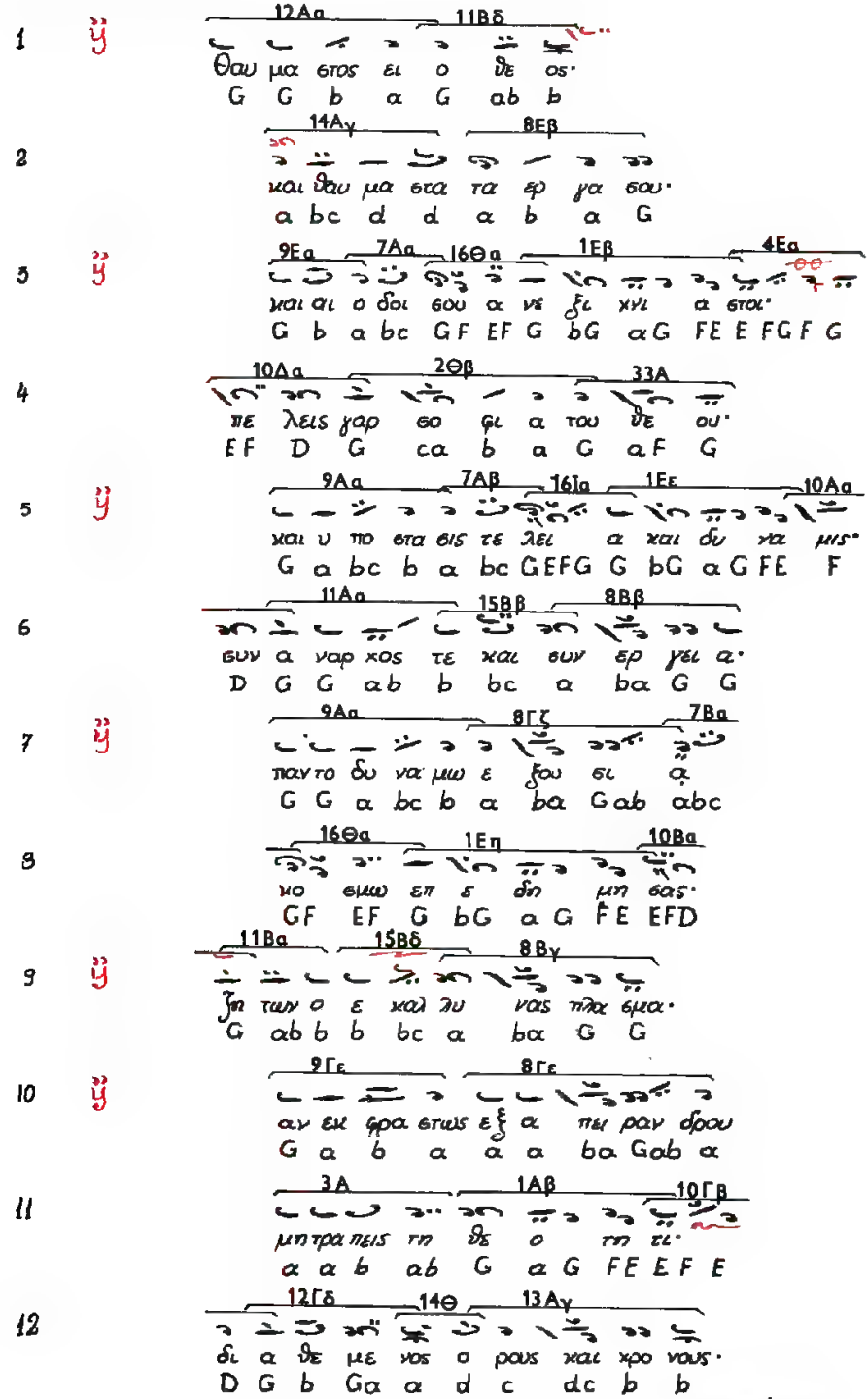
Beneath the text I have given letter-transcription of the melodies. This is a simple and practical way of indicating the movements of the melody without becoming involved in the intricacies of a complete reading of the Byzantine musical notation;a method which has also been used, for example, by Jørgen Raasted, in his "Intonation Formulas and Modal Signatures in Byzantine musical Manuscripts". This method of representation presupposes, of course, that the melodies of the modes in question are diatonic. If they are proved to be chromatic it would have to be changed* .

Square brackets indicate parts of the melodies not clearly discernible in the manuscript due either to bad photographing or to damage suffered by the manuscript itself.

* For more details see p.p. 96-111.

M.M.B. Tr. I, Sept. No. 3
Sinai 1230, 2v.

Κυπριανοῦ μοναχοῦ



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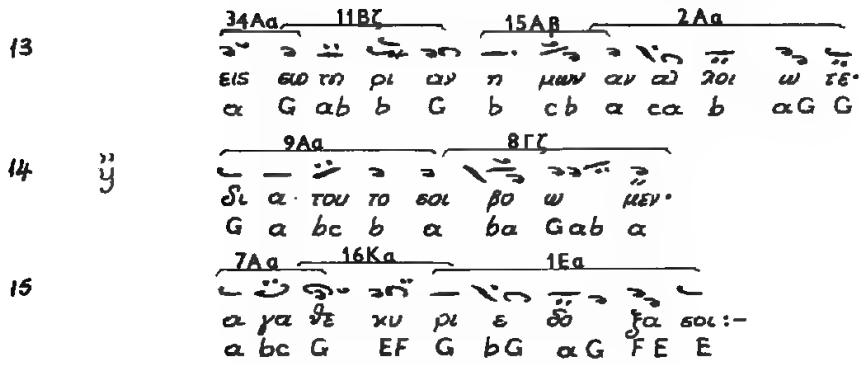
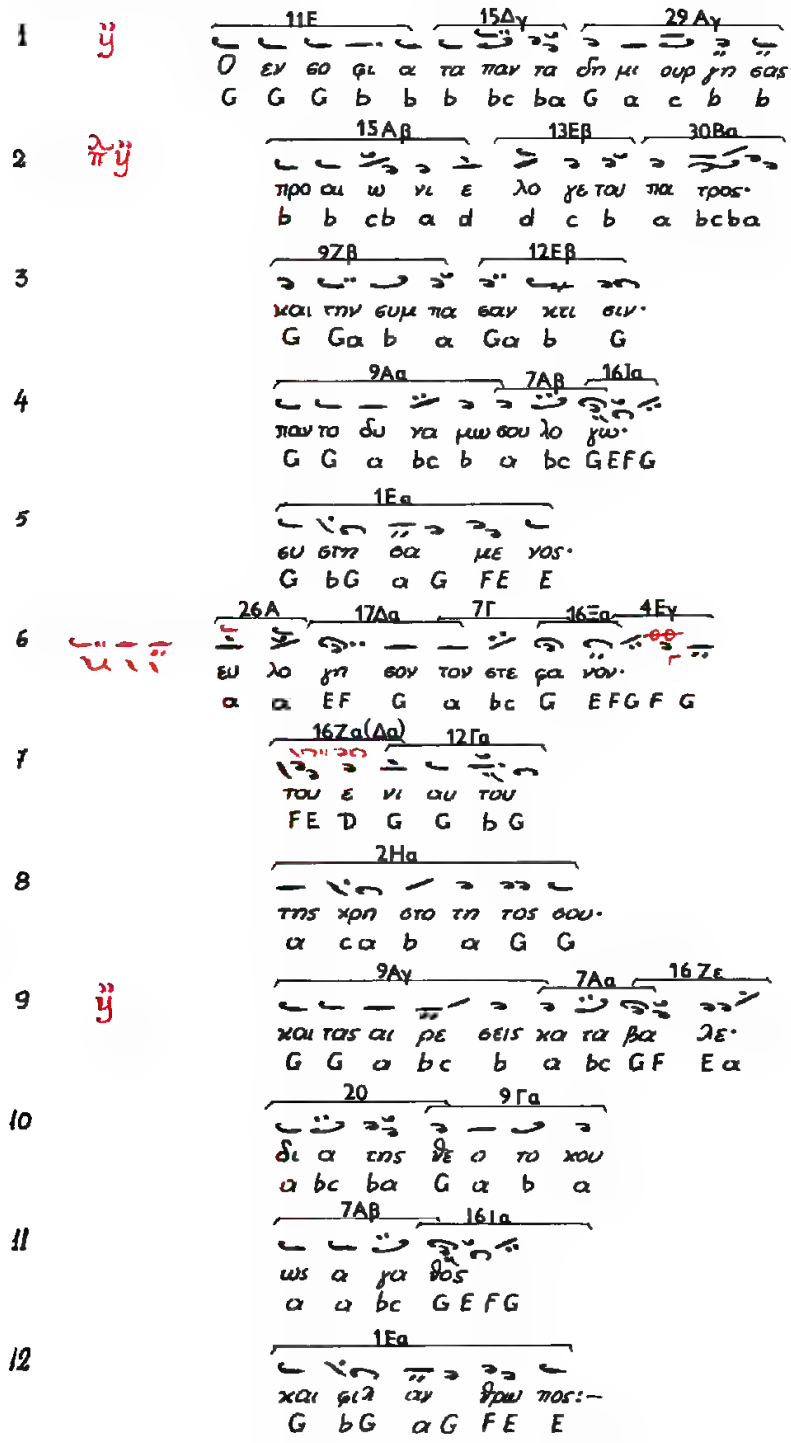
M.M.B. Tr. 1, Sept. No. 3
continued



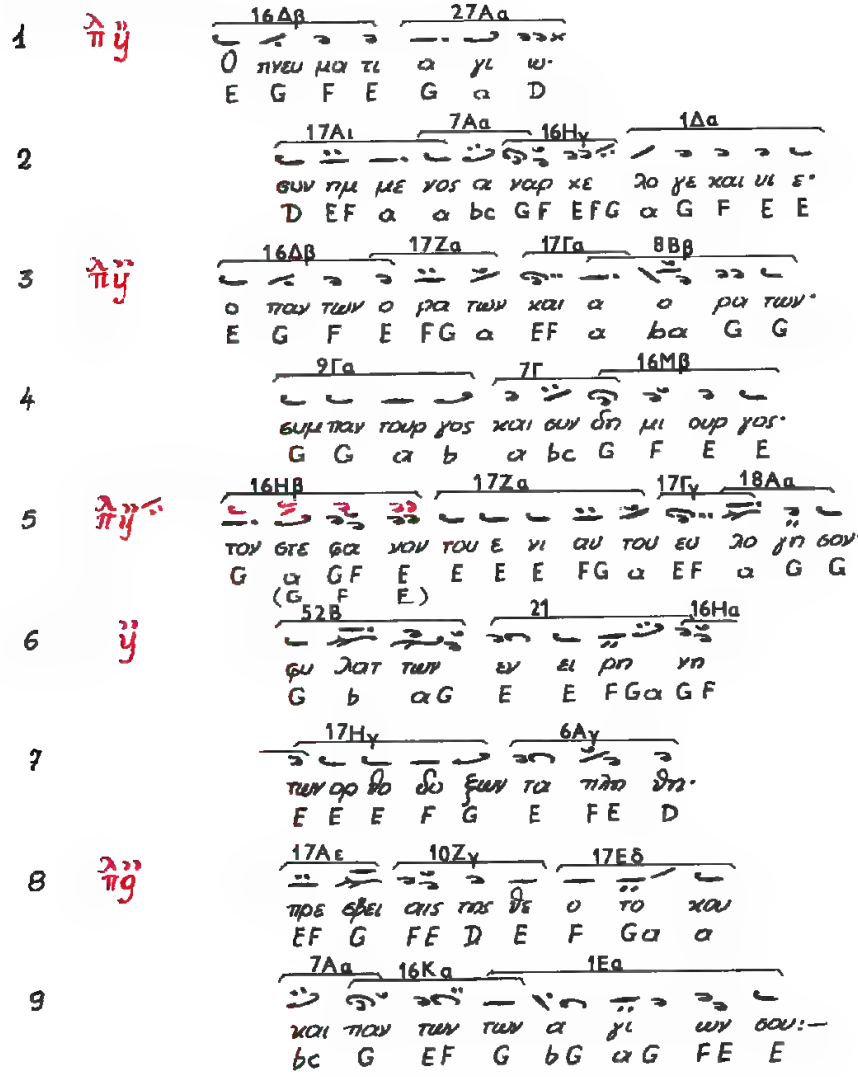
MMB Tr. 1, Sept. No. 4
Sinai 1230, 2v

Ταραισίου πατριάρχου

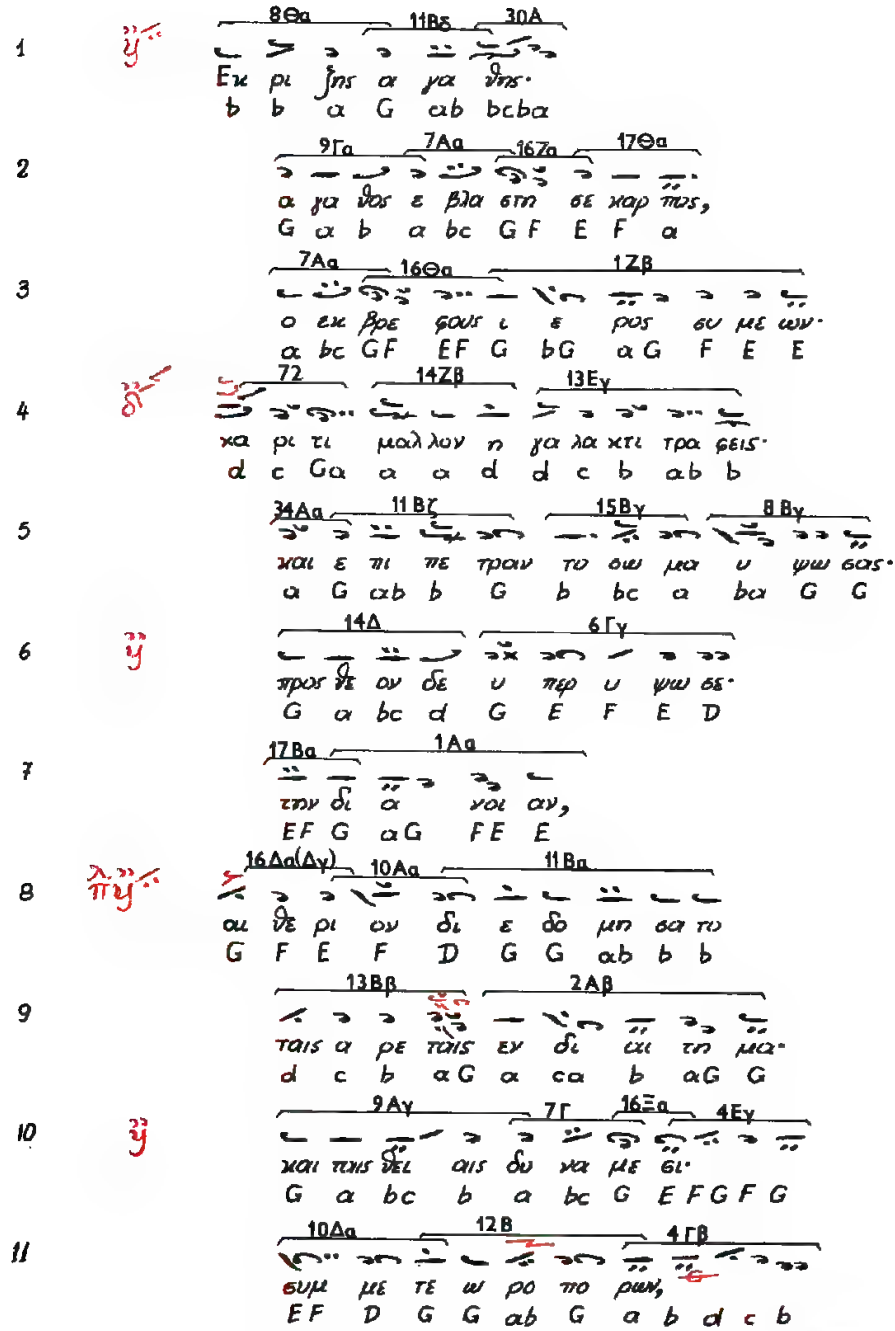


M.M.B. Tr. I, Sept No. 9
Sinai 1230, 4r.

Ταραβίου πατριάρχου



M.M.B. Tr. I, Sept. No. 11
Sinai 1230, 4r.

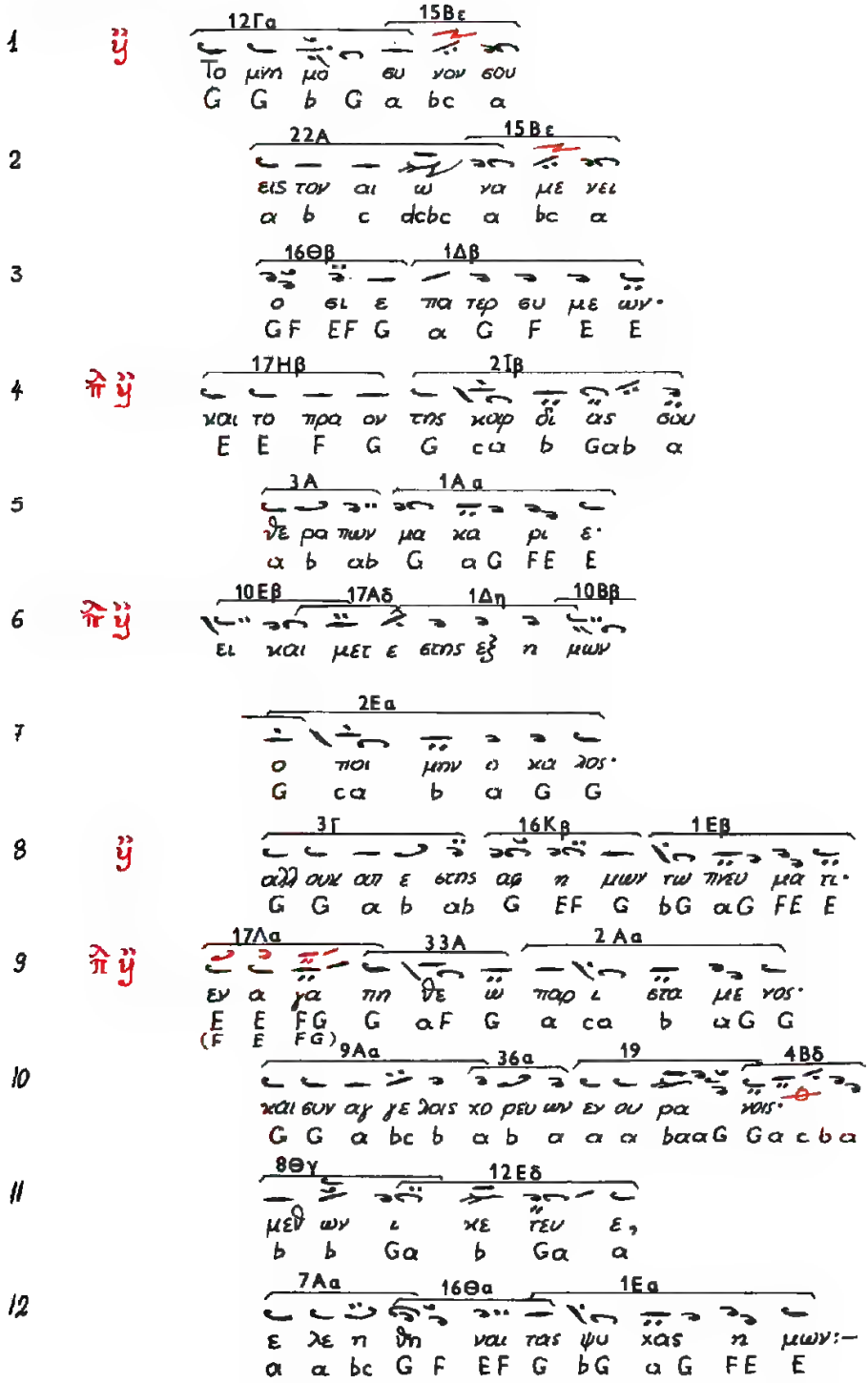


cont

M.M.B. Tr. 1, Sept No 11
continued

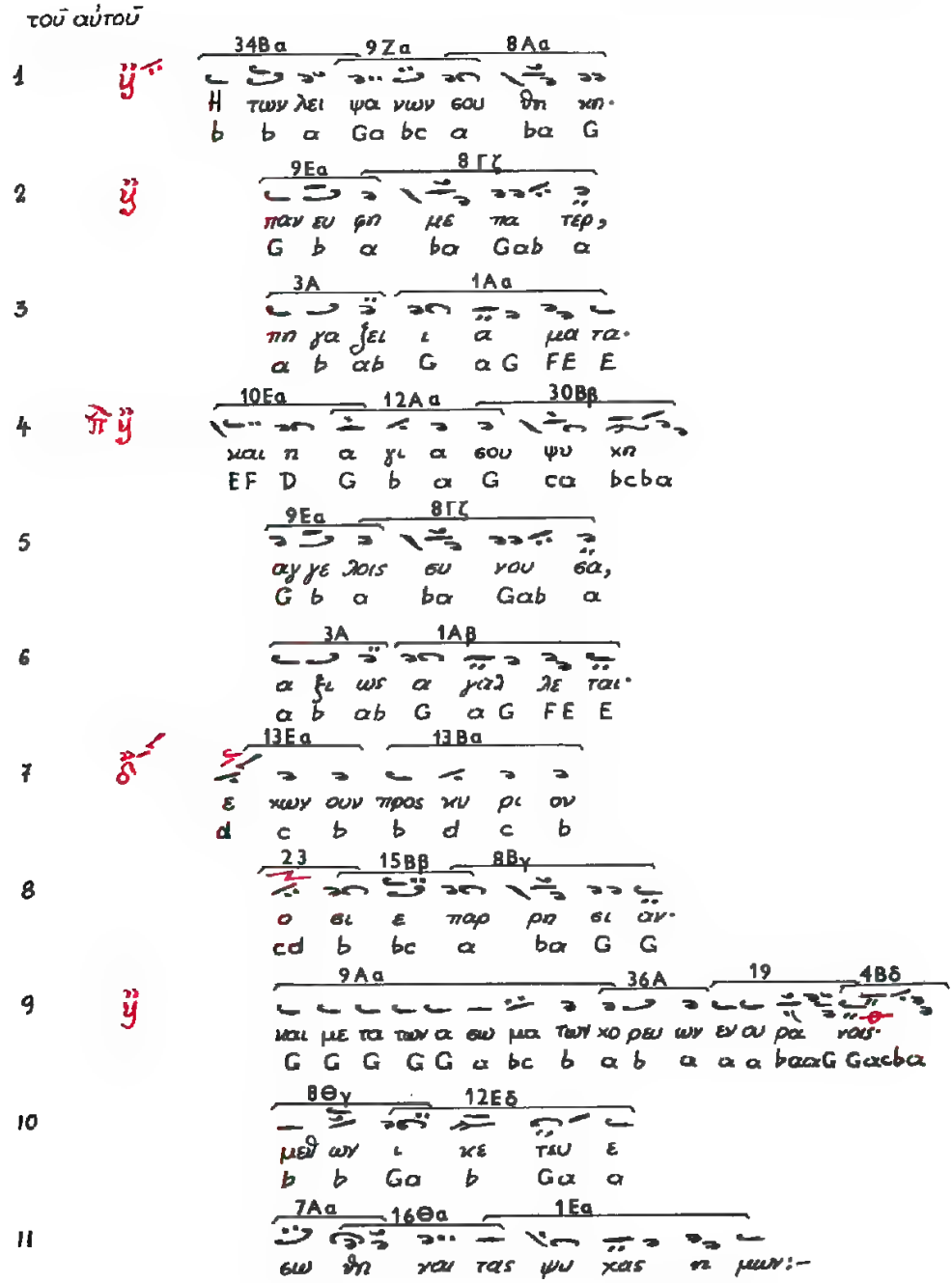
M.M.B. Tr. I, Sept. No. 12
Sinai 1230 4v.

τοῦ σταυδίτου

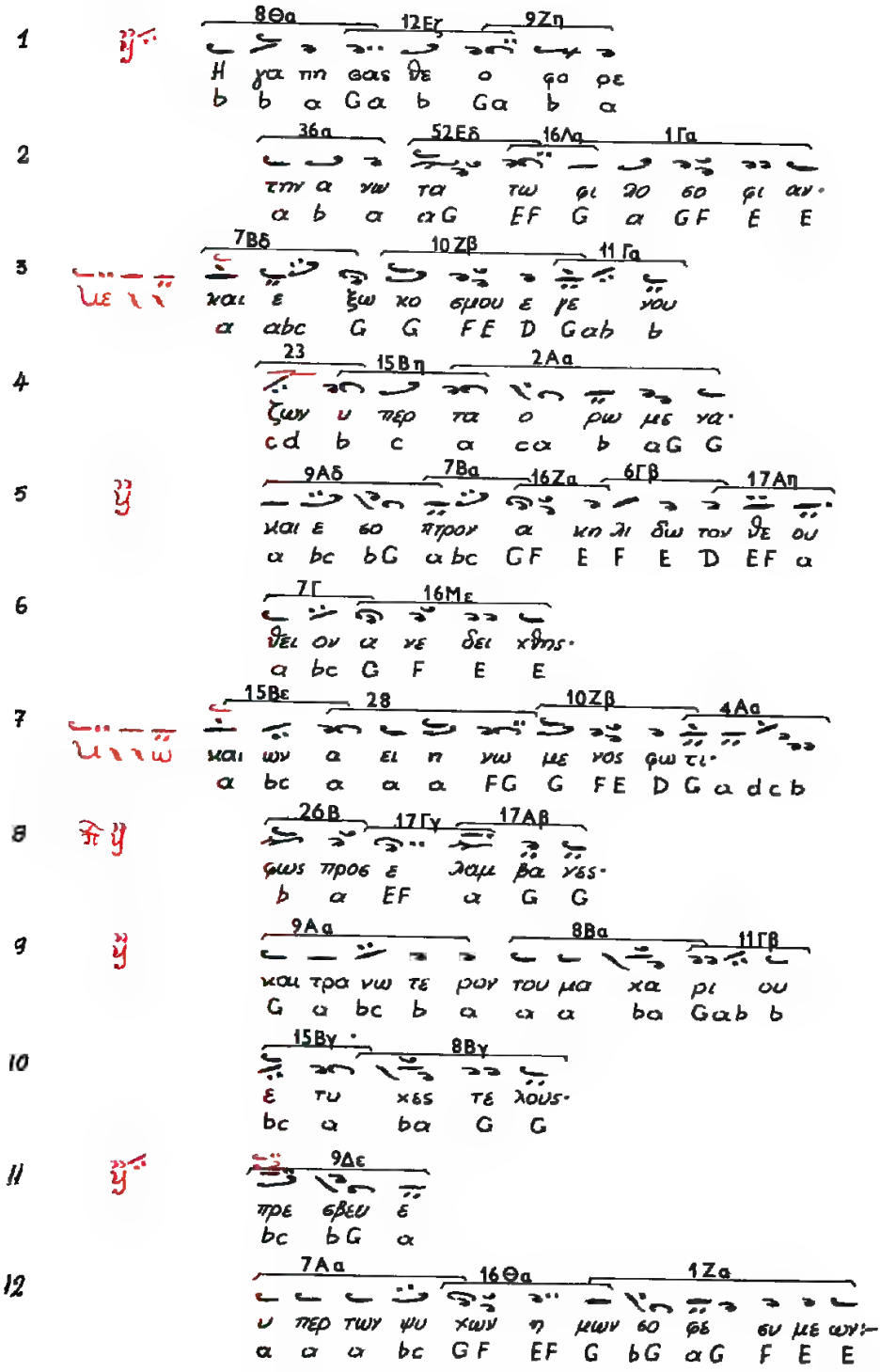


M.M.B. Tr. I, Sept. No. 13
Sinai 1230 4v.

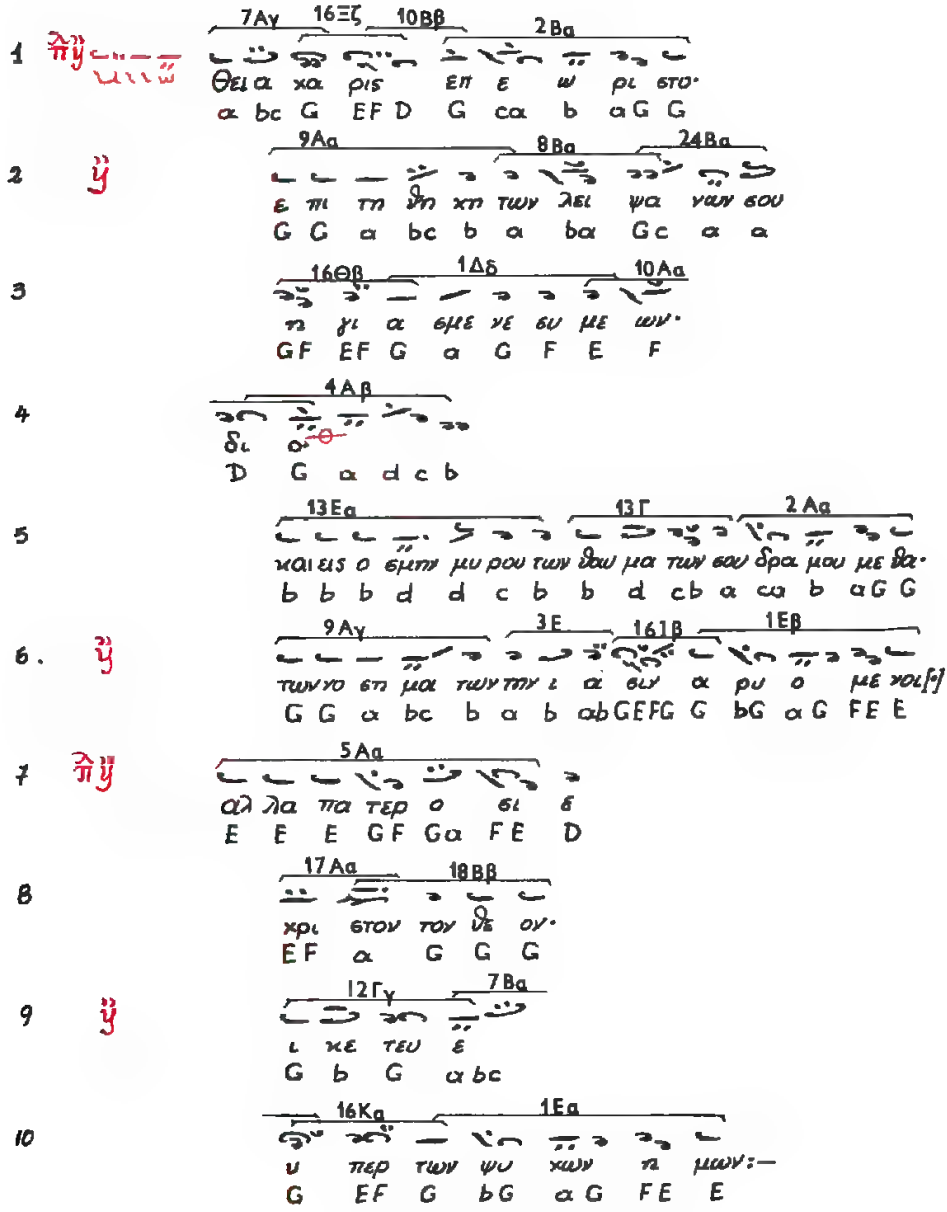
τοῦ αὐτοῦ



M.M.B. Tr. I, Sept. No 14
Sinai 1230, 4v.



M.M.B. Tr. I, Sept. No 16
Sinai 1230 5r.



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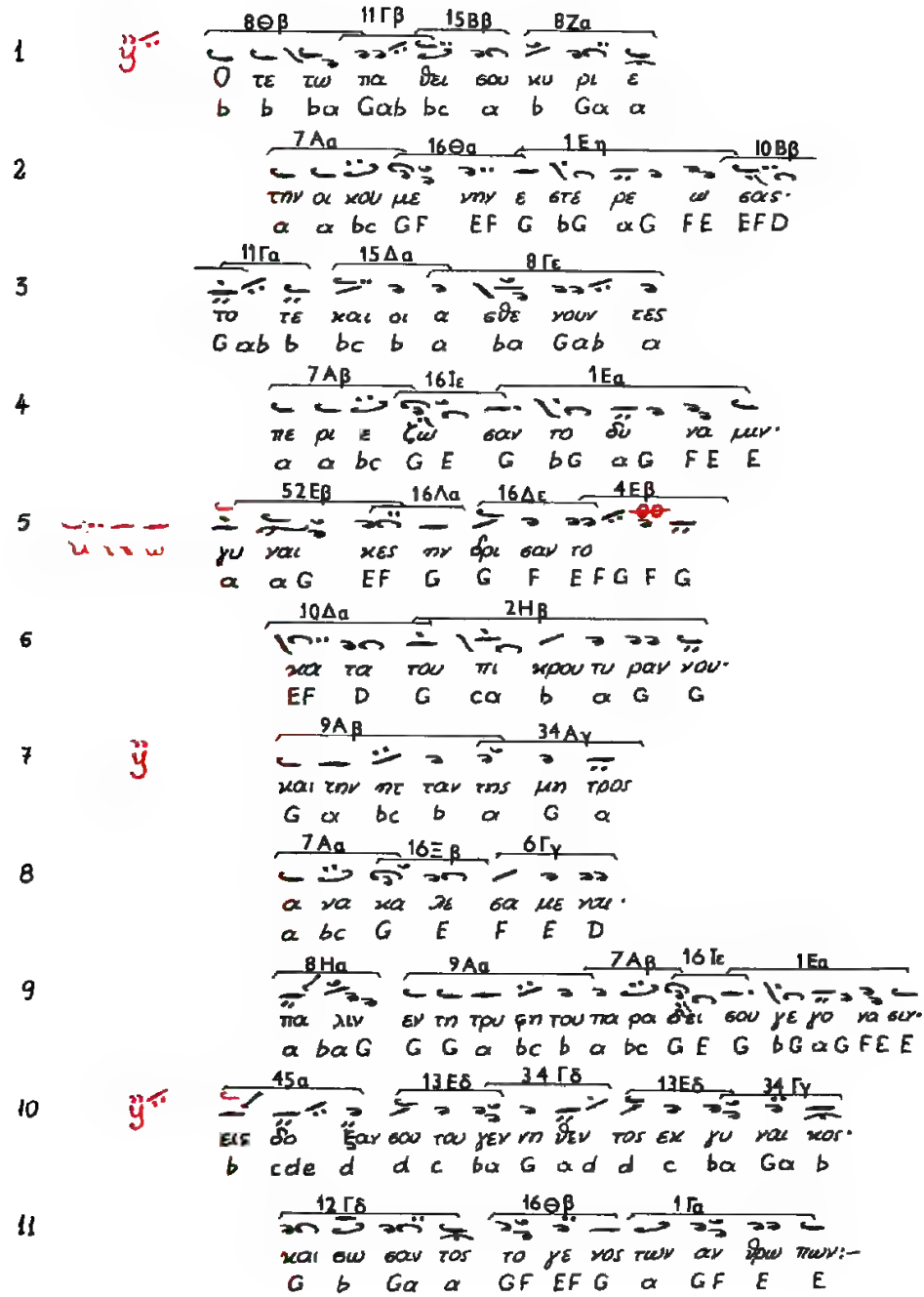
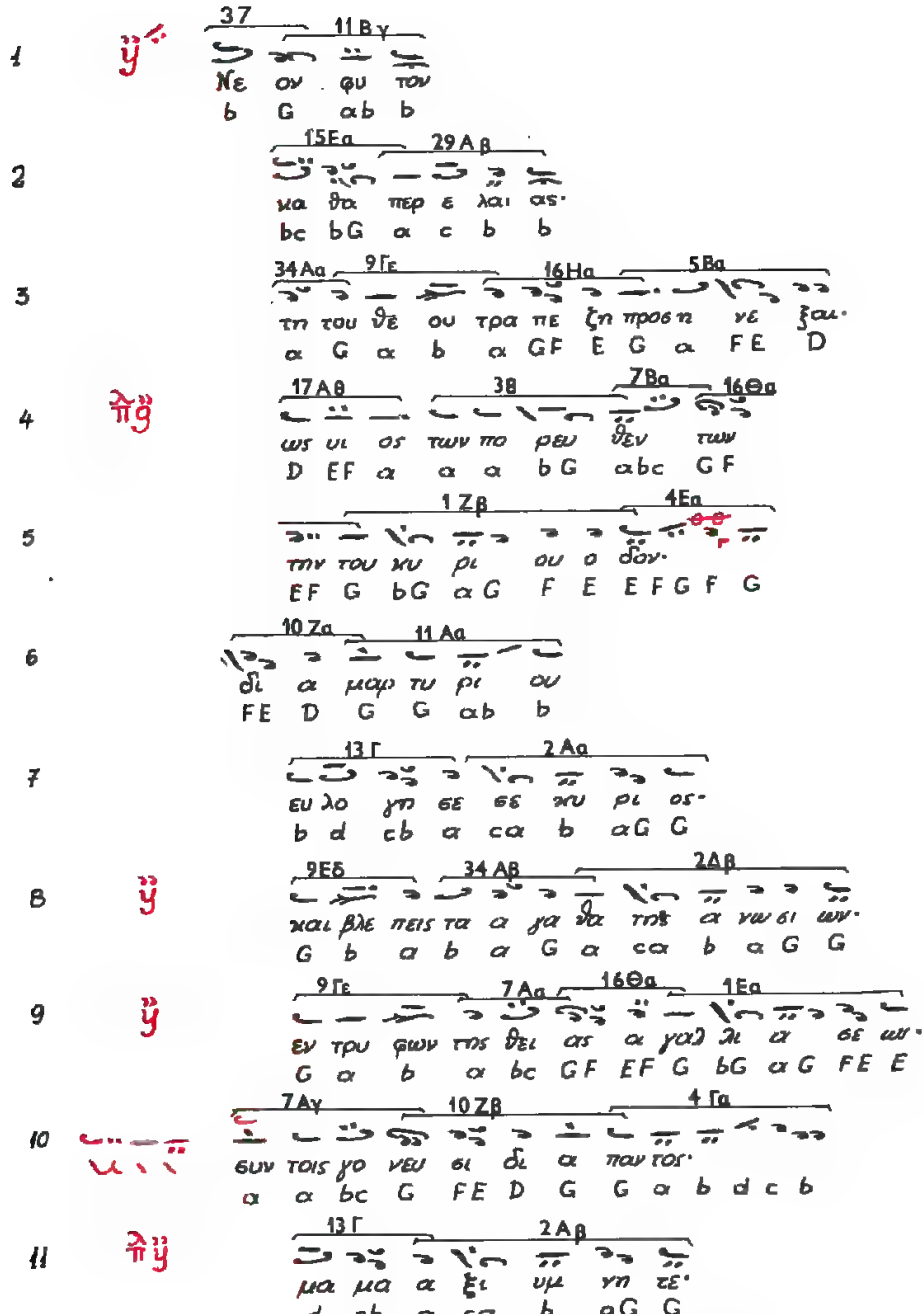
Sinai 1230 5r

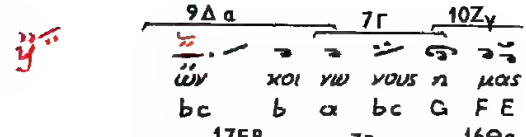


M.M.B. Tr. I, Sept. No. 18
Sinai 1230 5v



M.M.B. Tr. I, Sept. No. 18
continued

12



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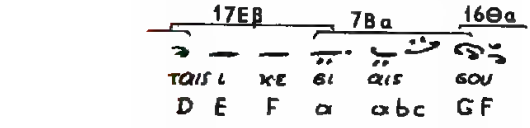
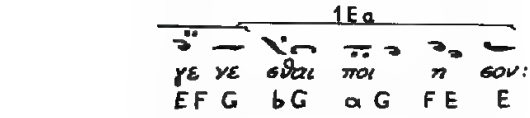
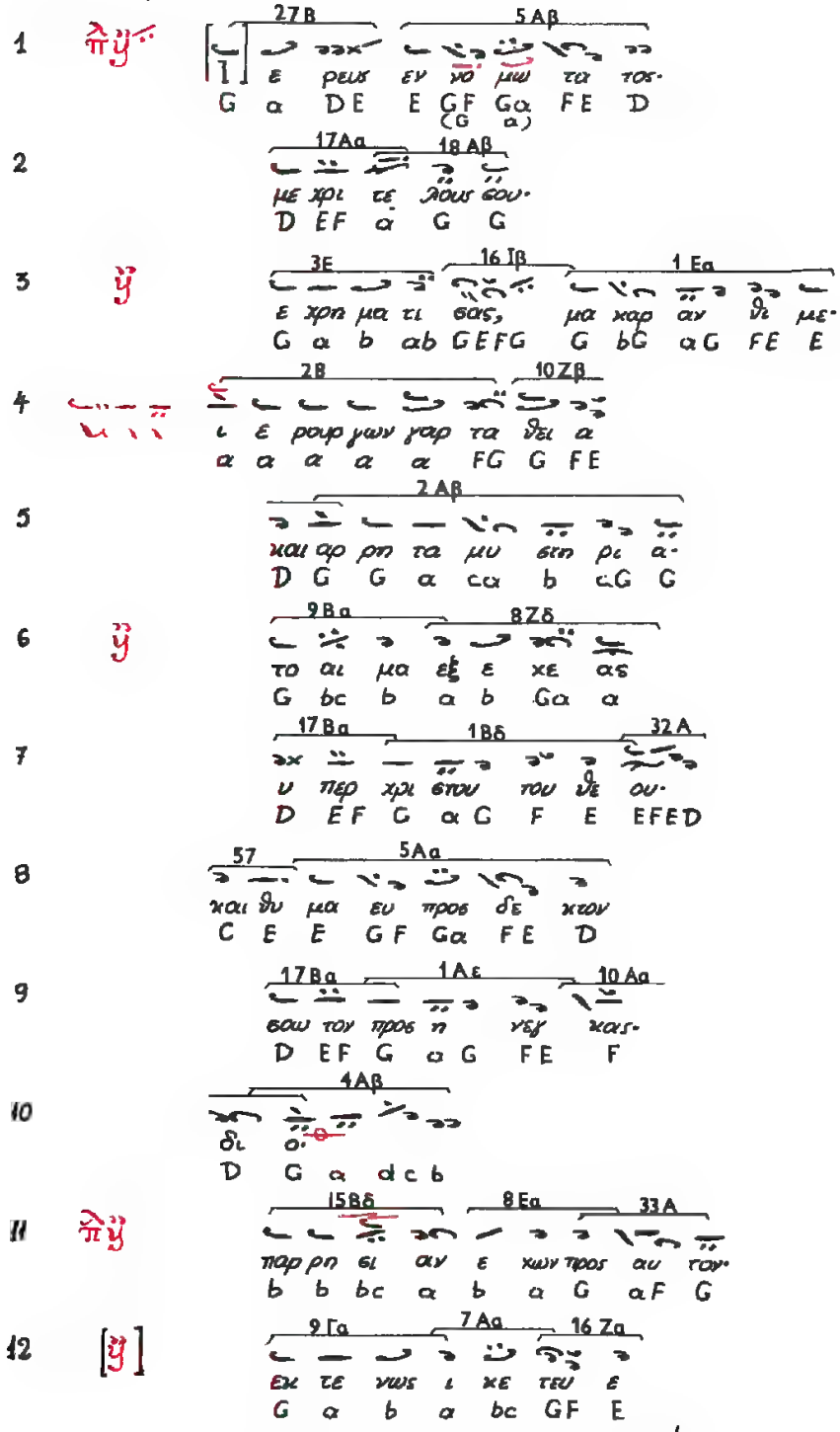


14



M.M.B. Tr. I, Sept. No.21
Sinai 1230, 6r

Ἰωάννου μοναχοῦ



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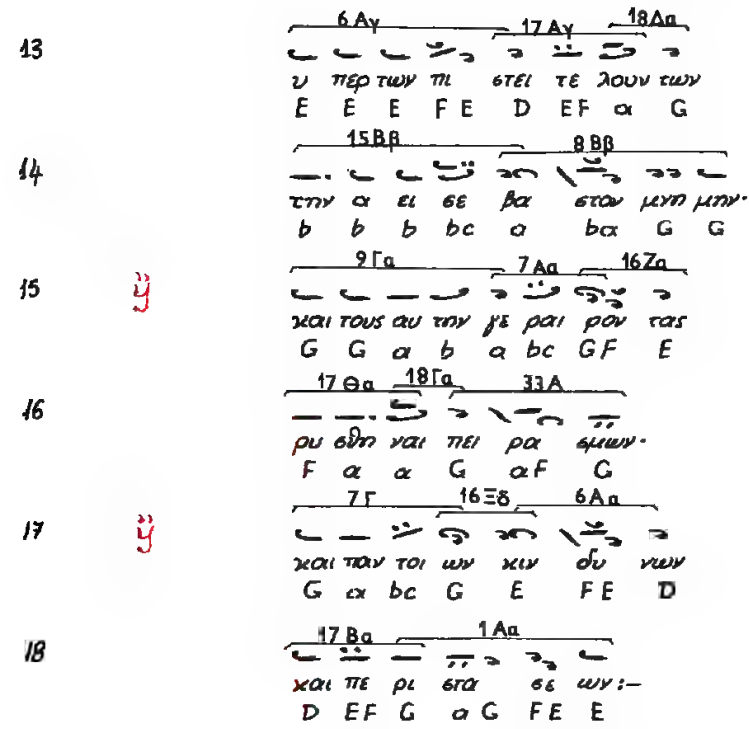
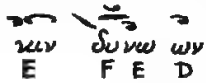
M.M.B. Tr. I, Sept. No 21
continued

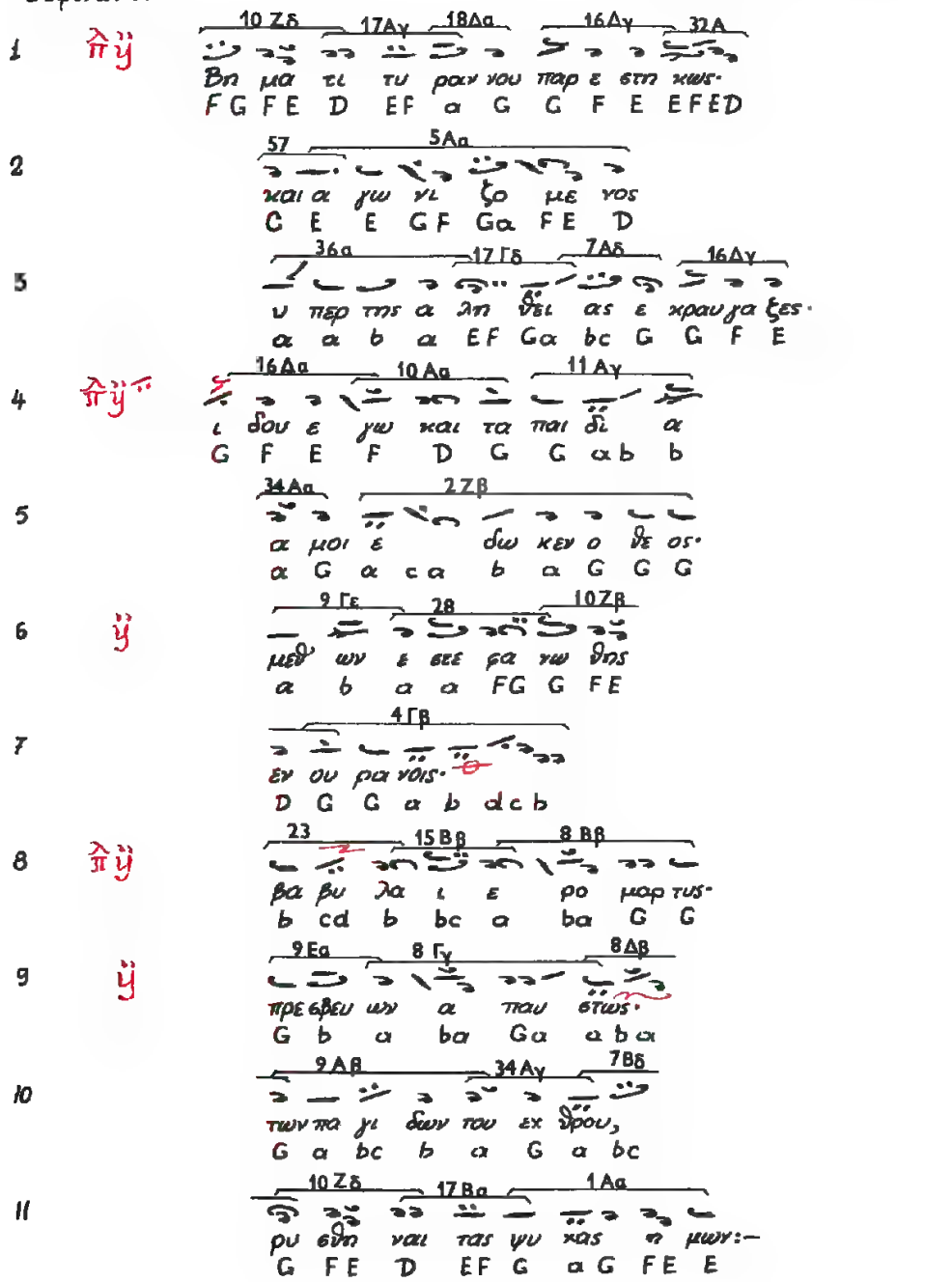


Notes:
In line 14 the MS reads σην for την
In line 17 the MS has a strange division of syllables:



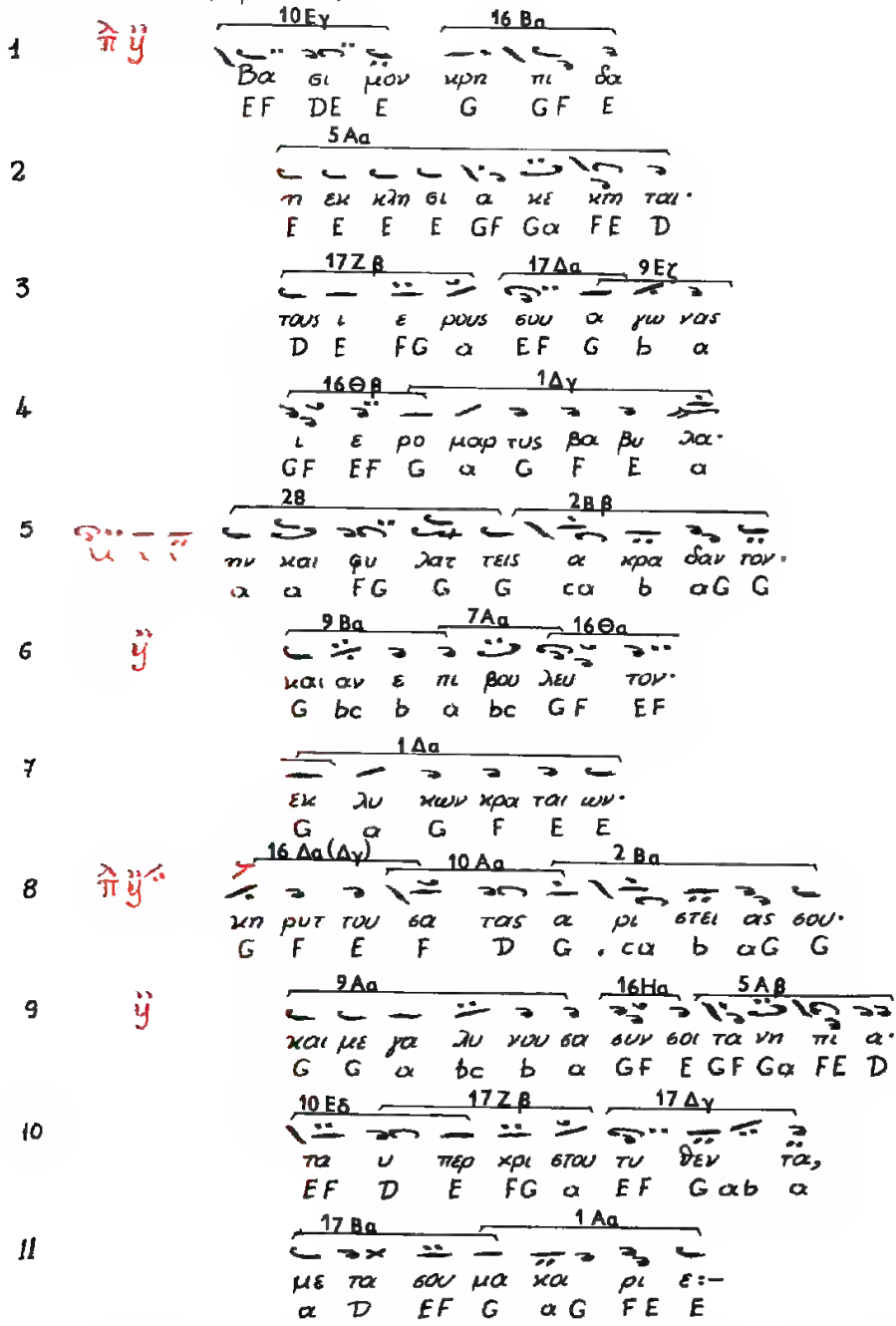
M.M.B. Tr. I, Sept. No 22
Sinai 1230, 6v

Βαβυλωνίου



MMB Tr. I, Sept. No. 23
Sinai 1230, 6 v

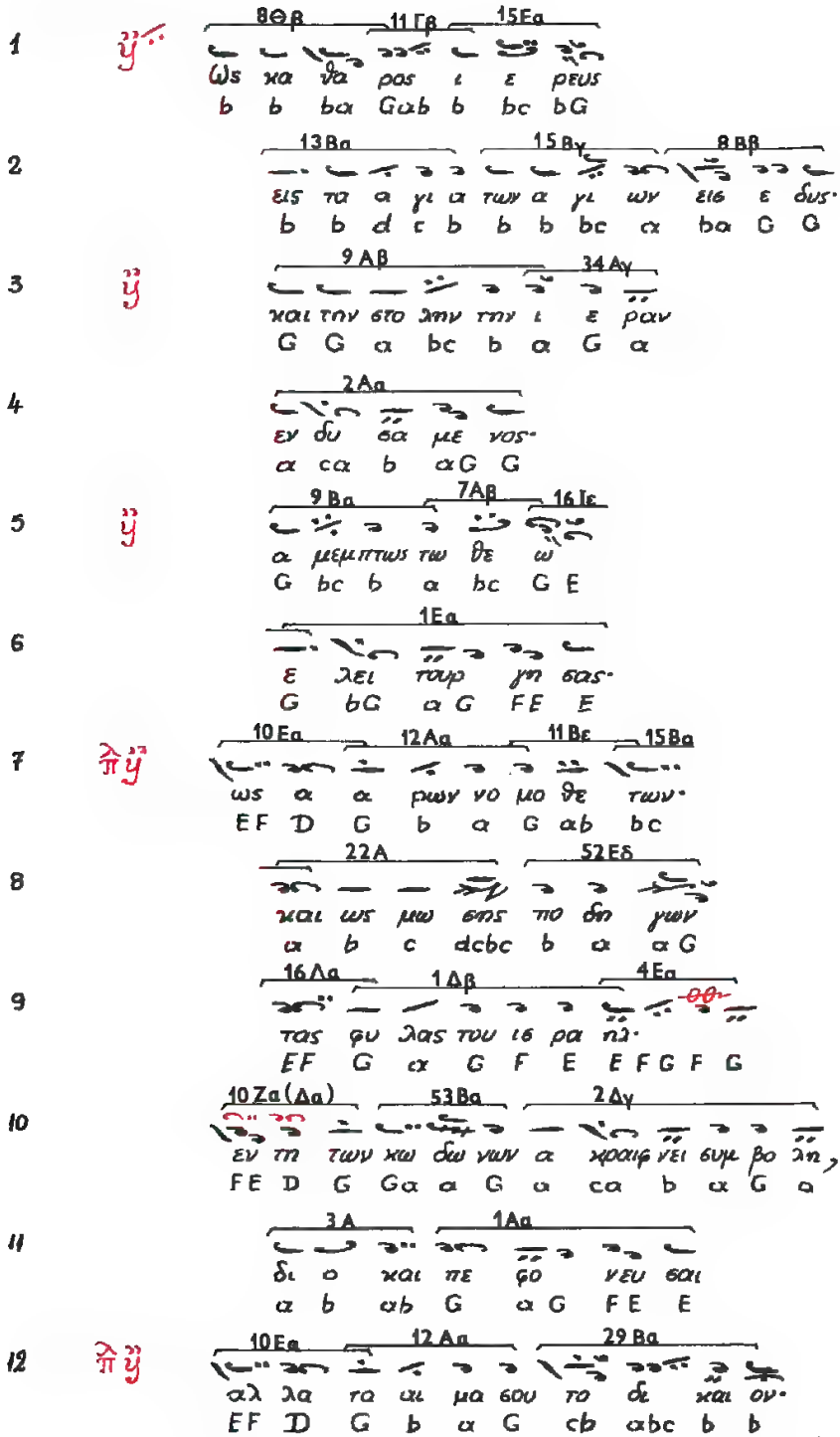
Τοῦ αὐτοῦ (i.e. Βαβυλωνίου)



NB. The whole of line 6 is written twice, both times with notation.

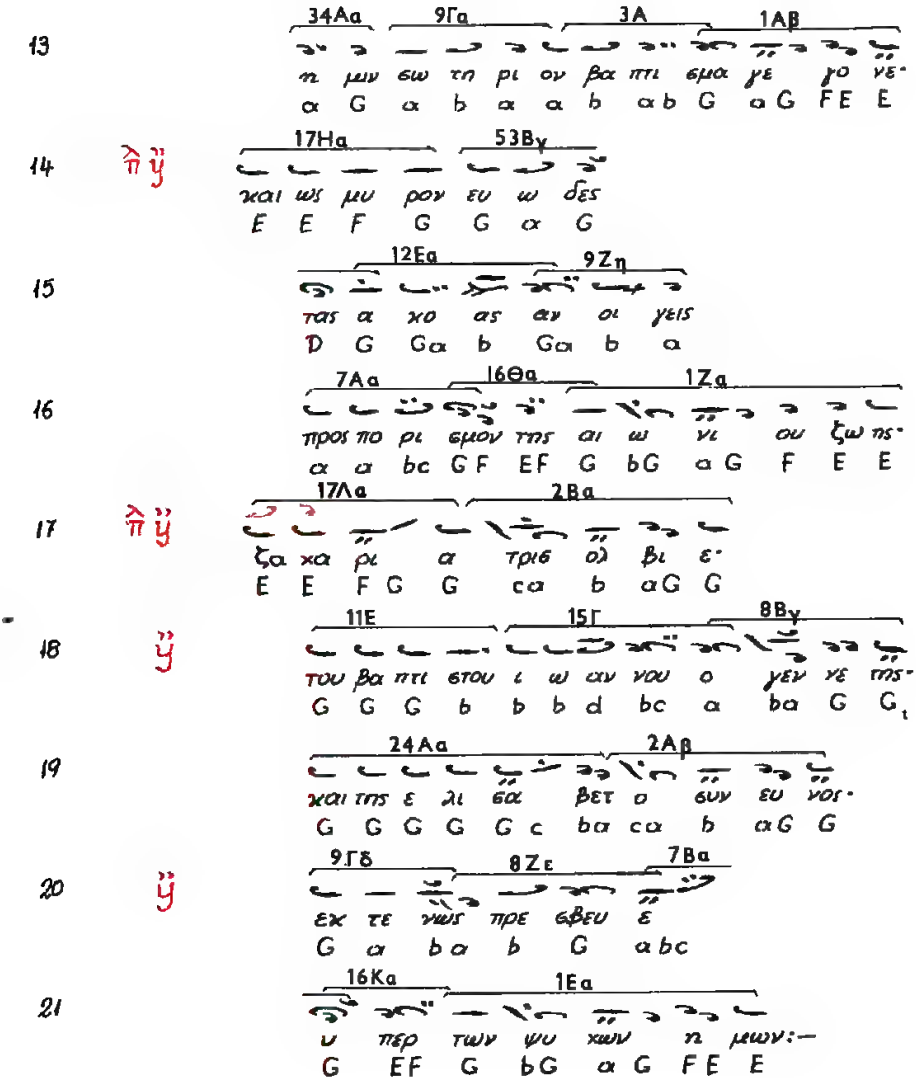
M.M.B. Tr. 1, Sept. No.24
Sinai 1230, 6v

Ἀναστολίου



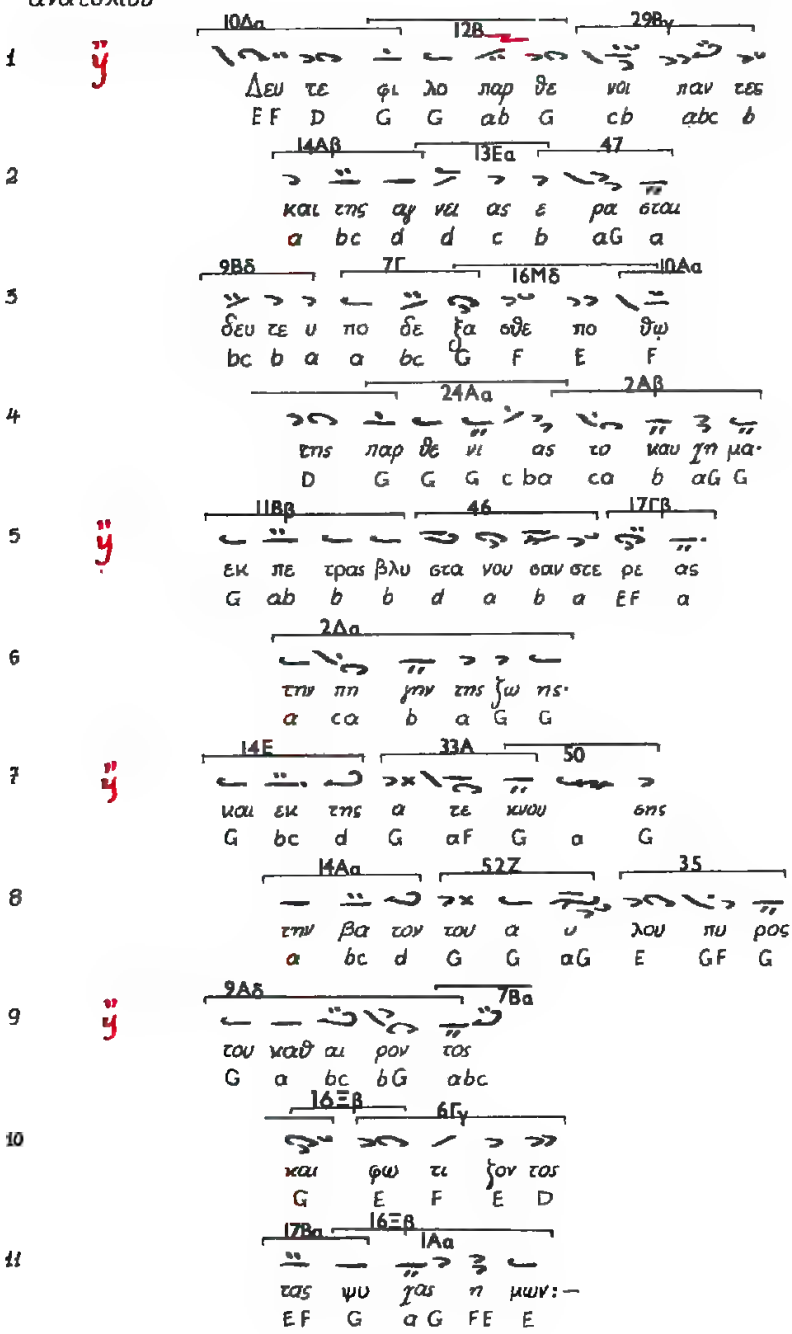
cont.

M.M.B. Tr. I, Sept. No. 24
continued



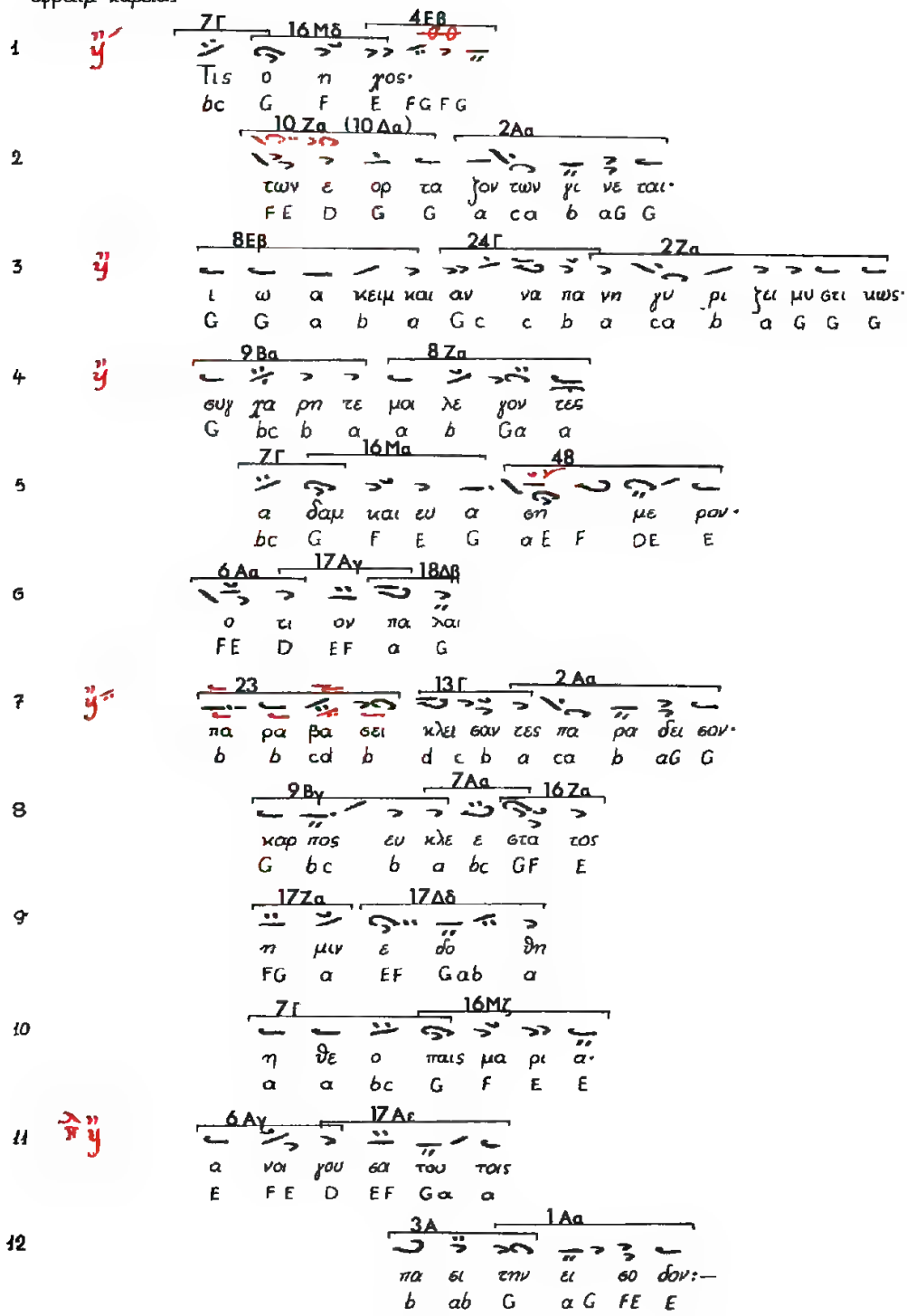
M.M.B. Tr. I, Sept. No 27
Sinai 1250, 7v

ἀνατολίου



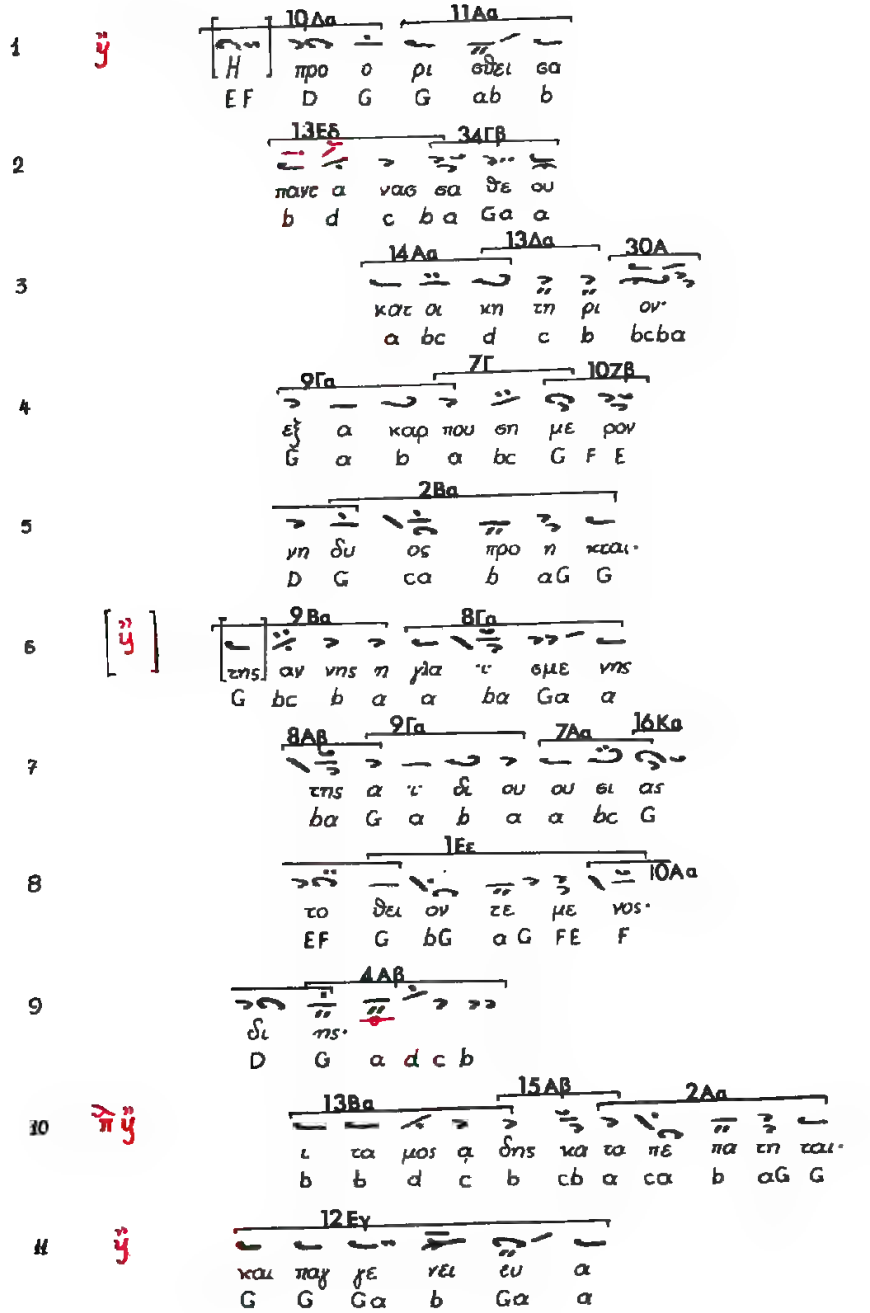
M.M.B.Tr. I, Sept. № 28
Sinai 1230, 7v

ἐφραίμ καρείας



M.M.B. Tr. I, Sept. No. 29
Sinai 1250, 8r.

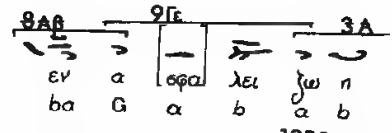
ἀνατολίου



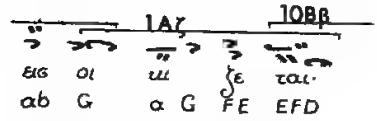
contin.

M.M.B. Τε. I, Sept. No. 29
continued

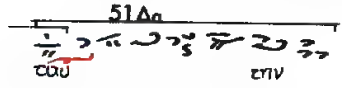
12



13



14



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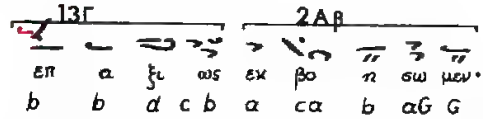

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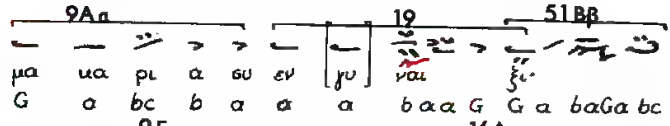
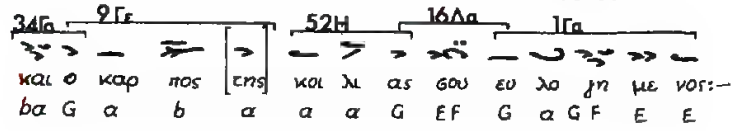
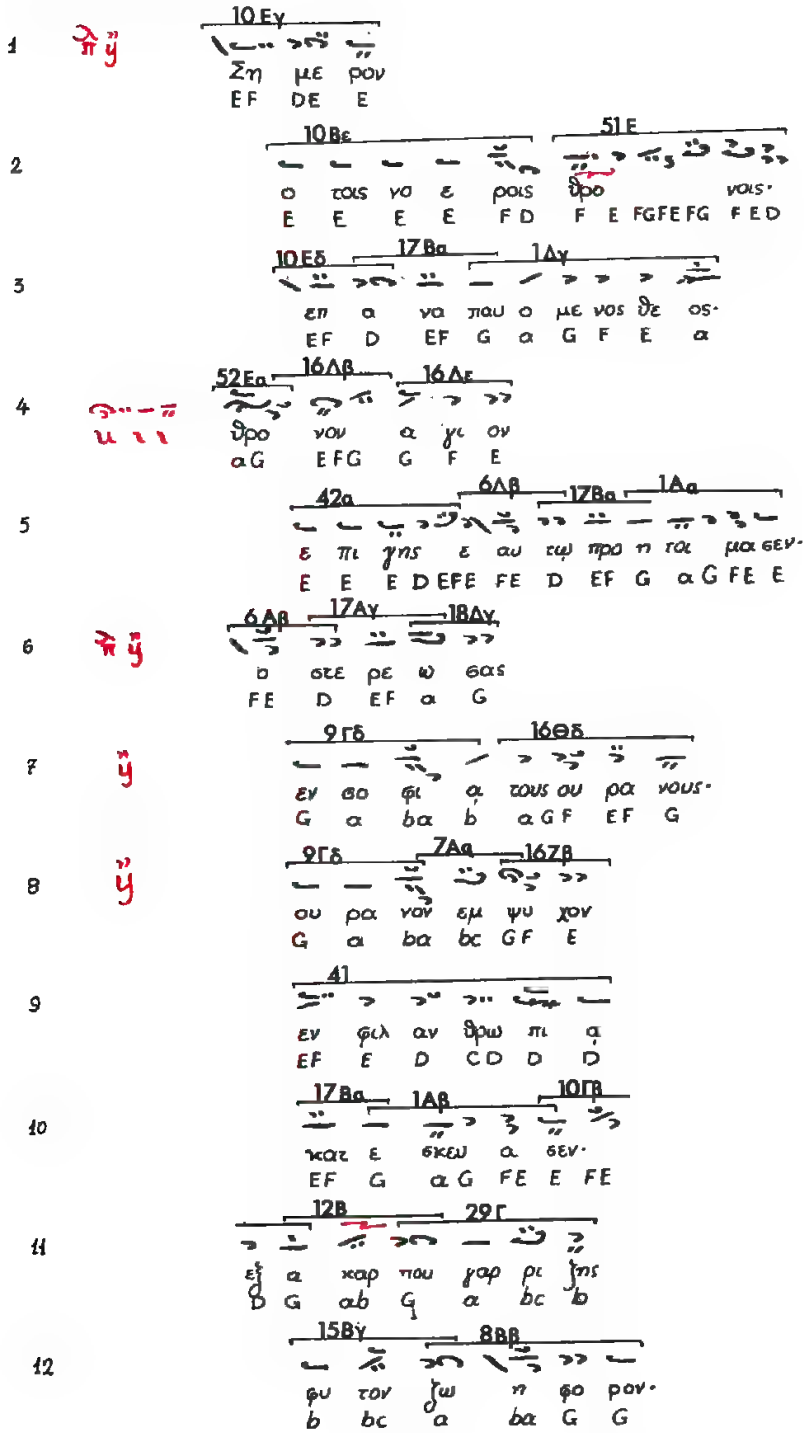


17

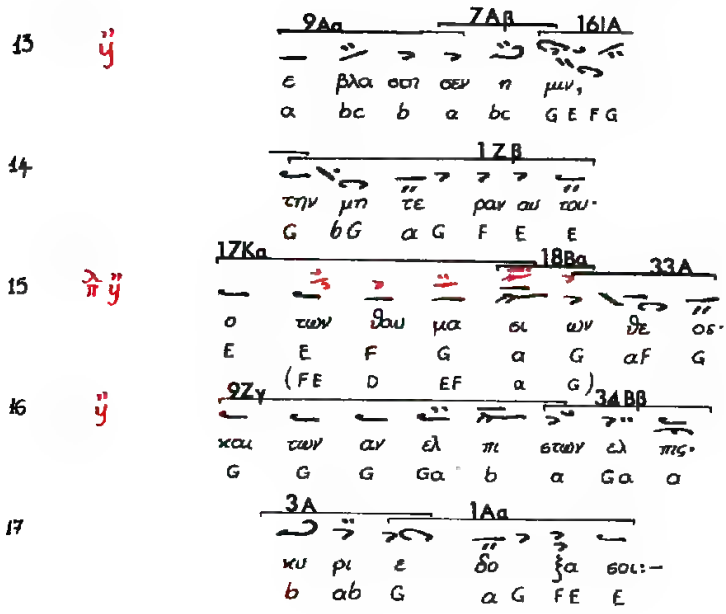


M. M. B. Tr. I, Sept. No 35
Sinai 1230, 9c

ἰωάννου μοναχοῦ

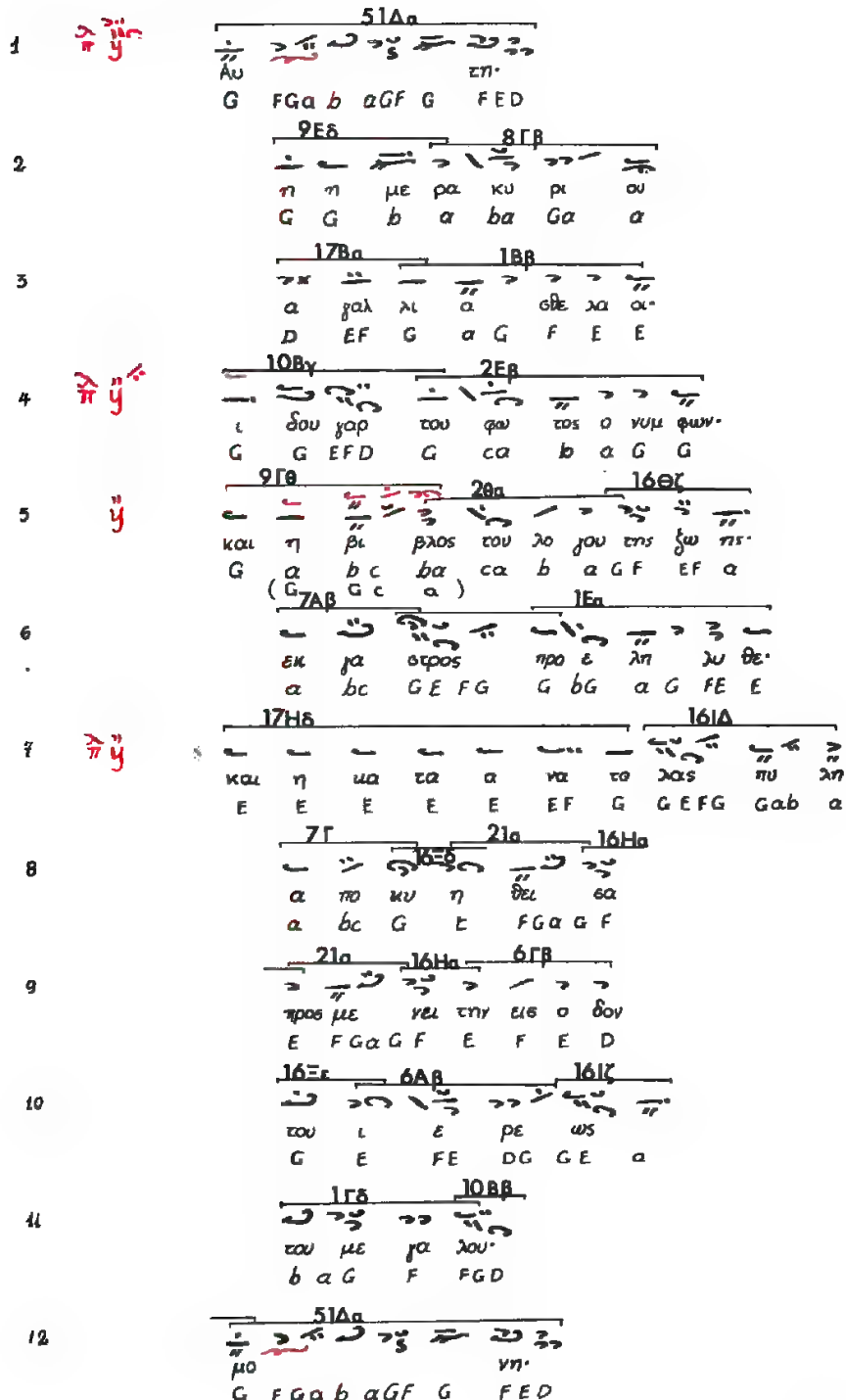


M.M.B. Tr. I, Sept. No. 33
continued



M.M.B. Tr. I, Sept. No. 34
Sinai 1230, 9v.

τοῦ αὐτοῦ (i.e. ἰωάννου μοναχοῦ)



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M. M. B. Tz. I, Sept. No 34
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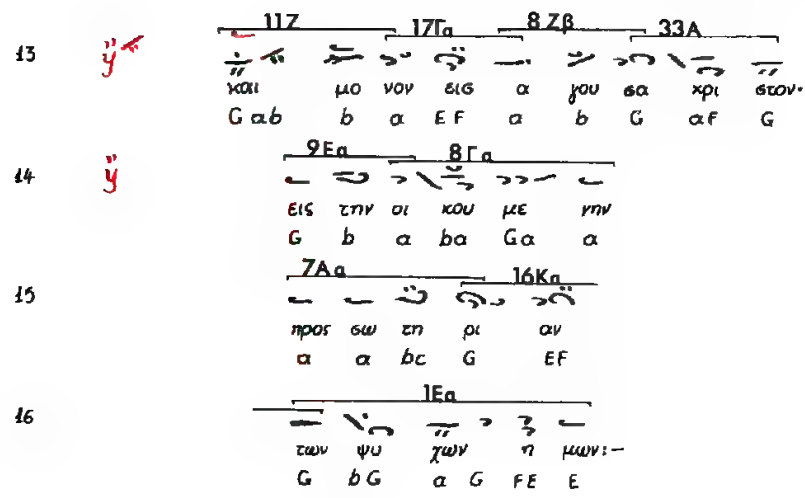
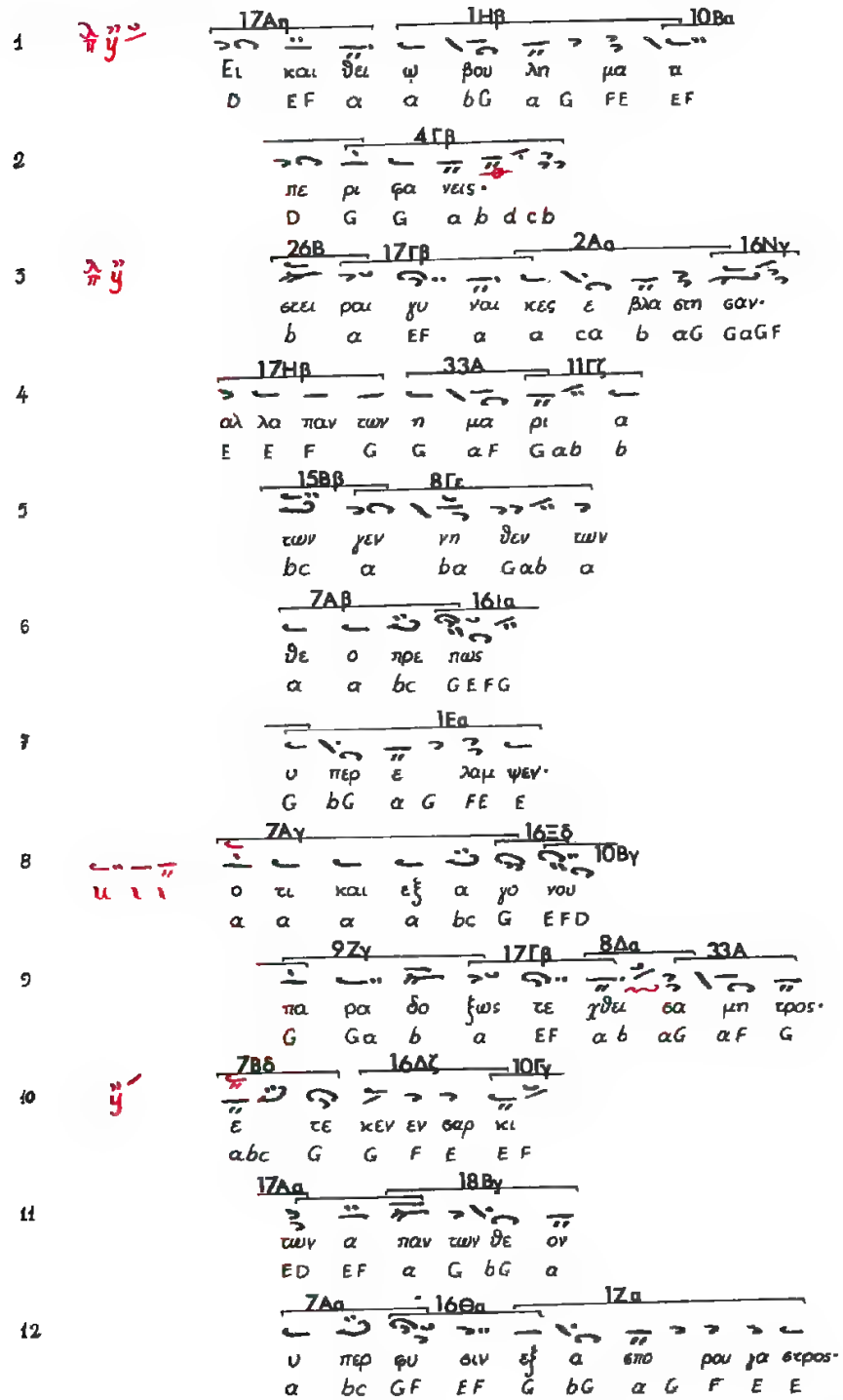
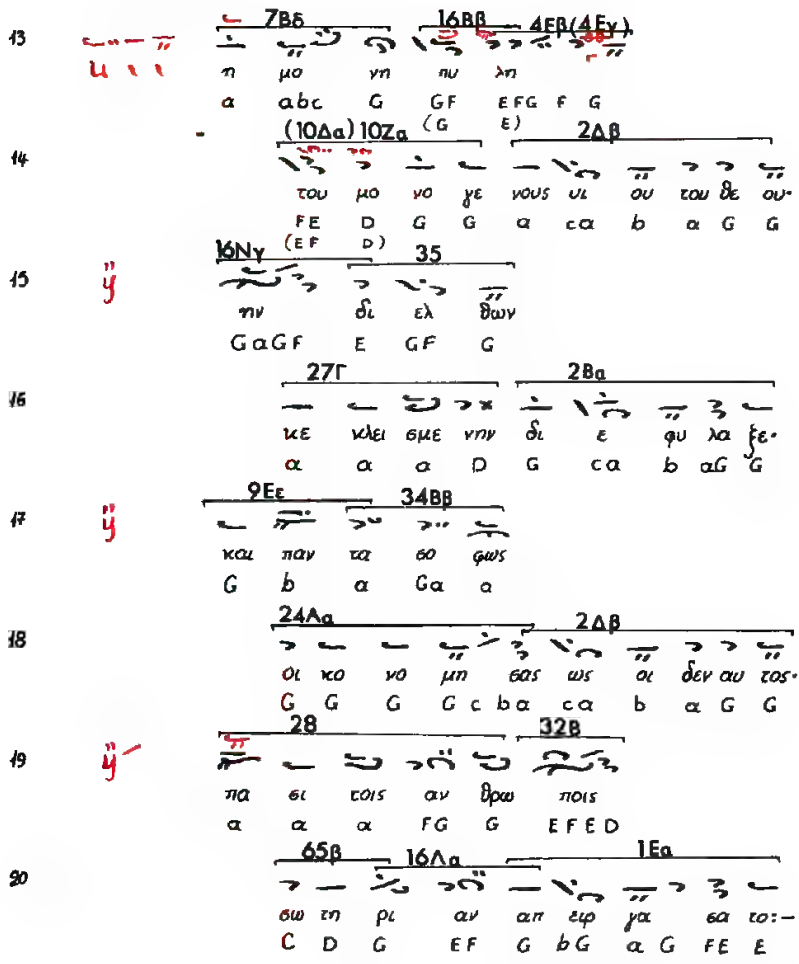


M.M.B. Tc. I, Sept. No 55
Sinai 1230, 9v.

τοῦ αὐτοῦ (i.e. ἰωάννου μοναχοῦ)

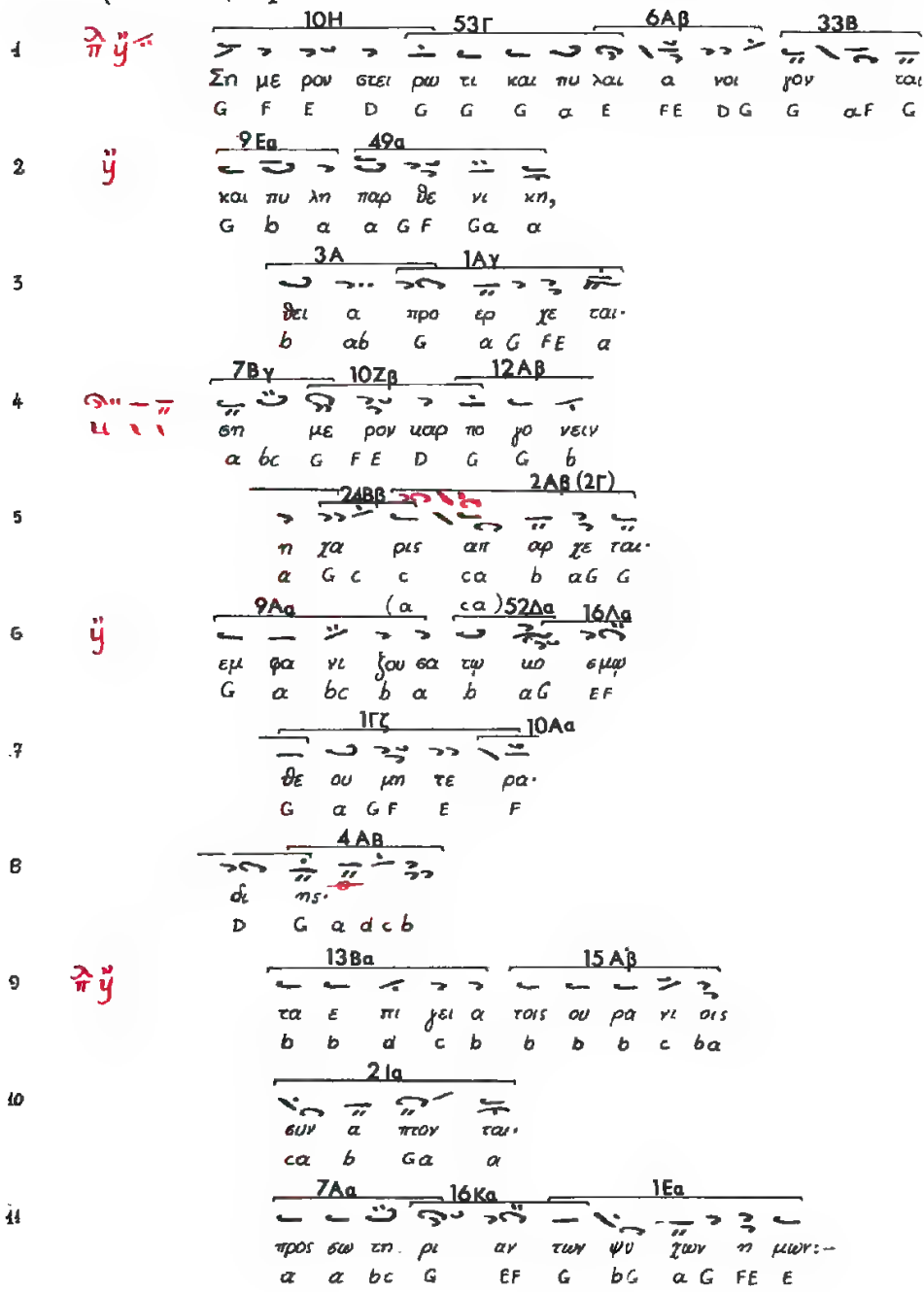


M. M. B. Tr. I, Sept. No 35
continued



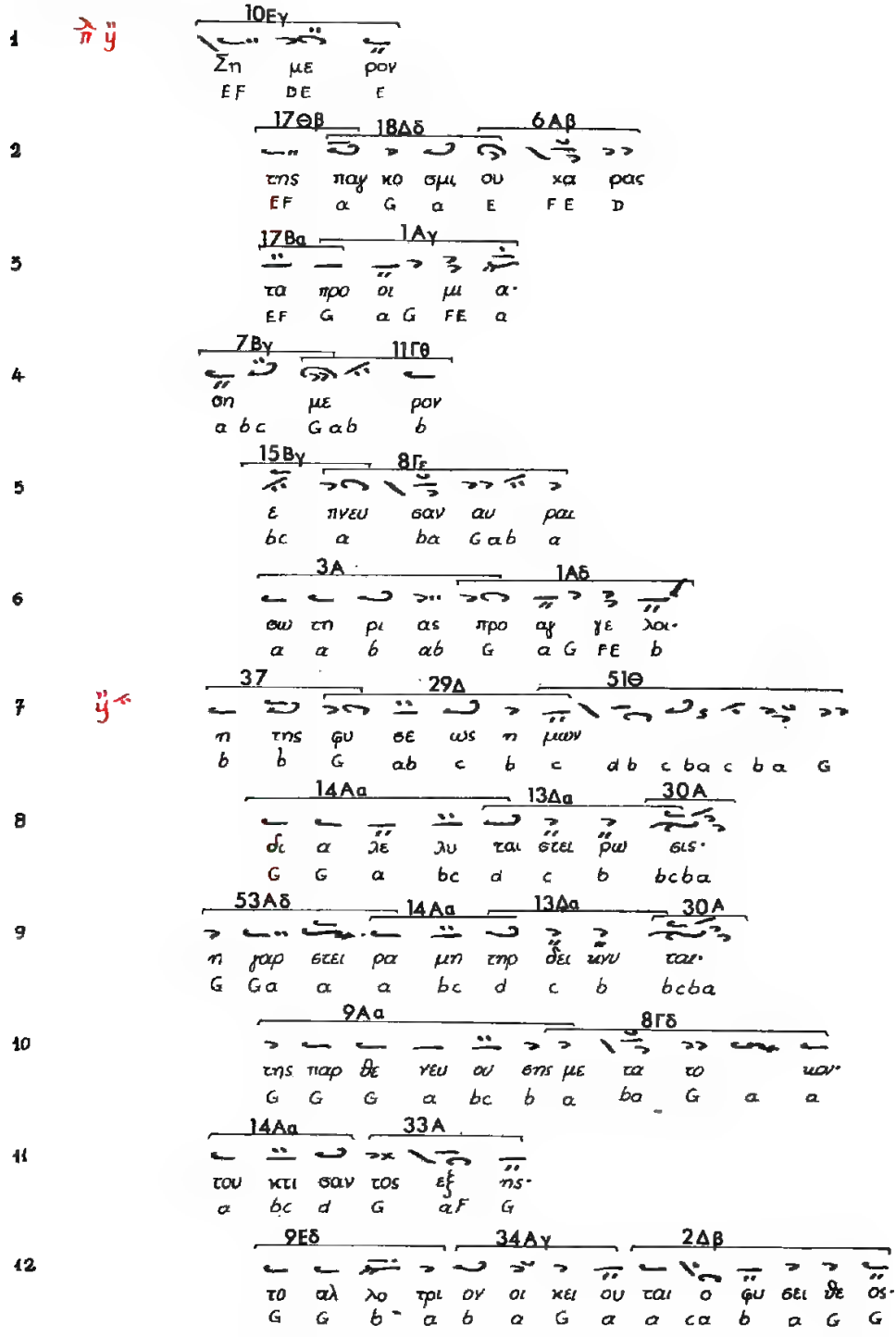
M.M.B. Tr. 1, Sept. No 36
Sinai 1230, 10t.

τοῦ αὐτοῦ (i.e. ἰωάννου μοναχοῦ)

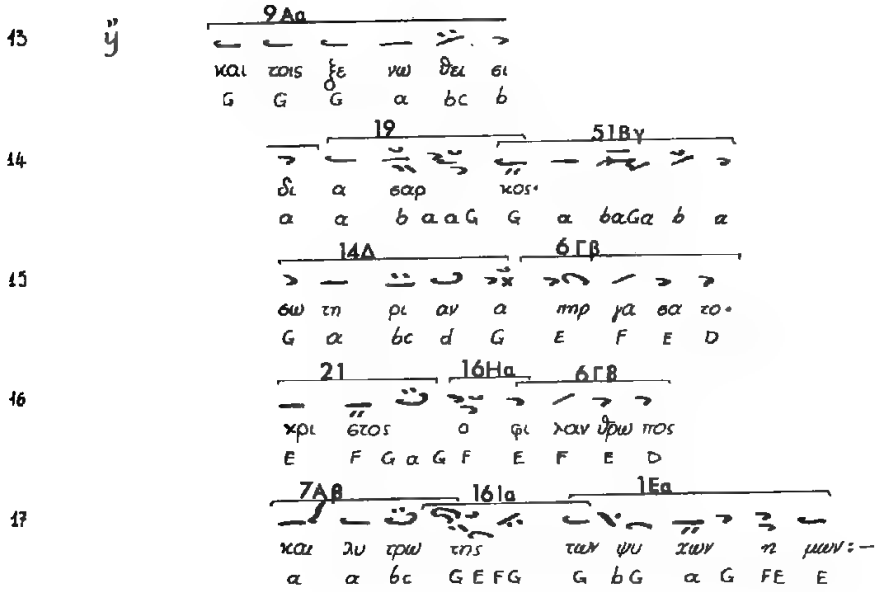


M.M.B. Tr. 1, Sept. No 57
Sinai 1230, 10c.

τοῦ αὐτοῦ (i.e. ἰωάννου μοναχοῦ)

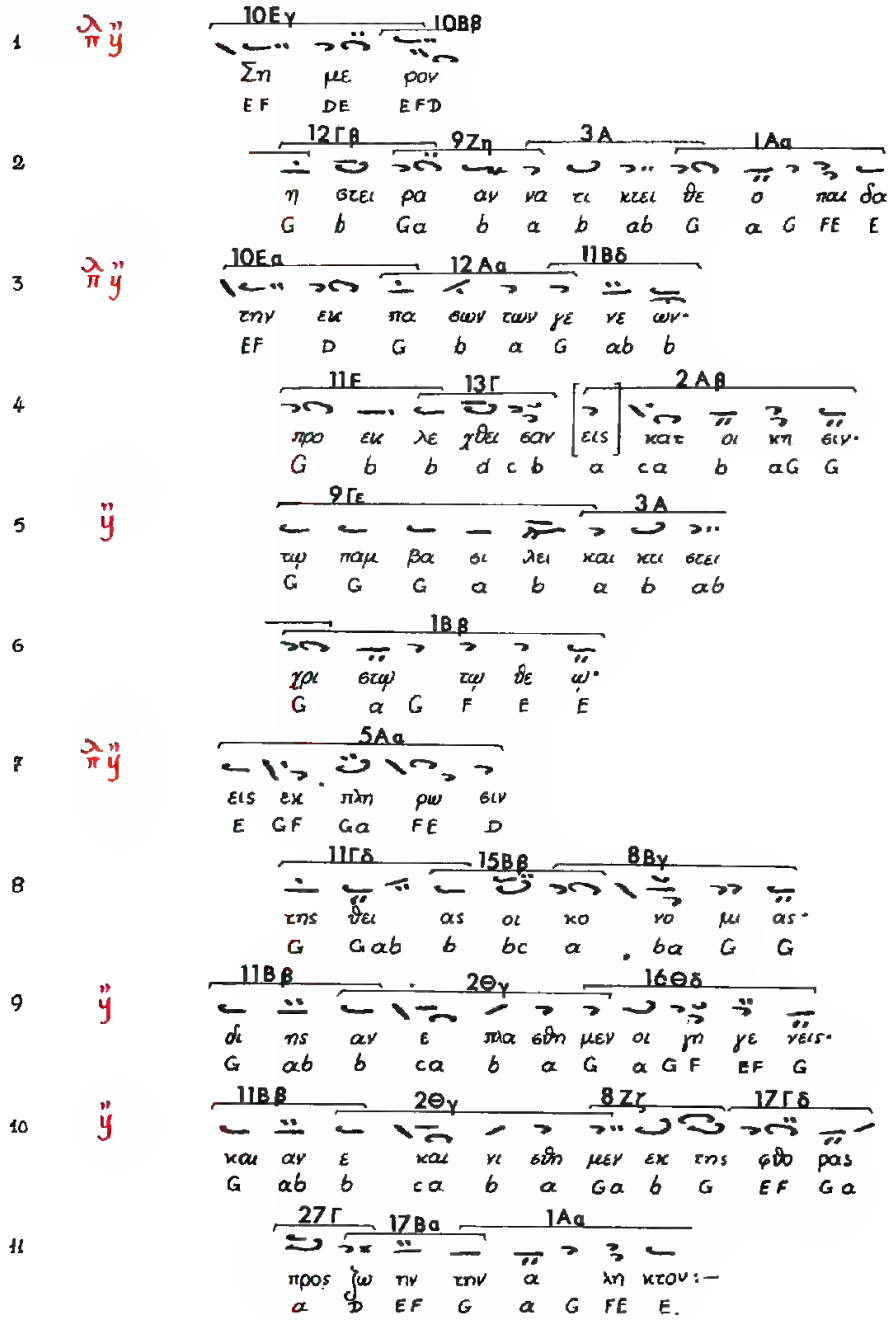


M.M.B. Tr. I, Sept. No 37
continued



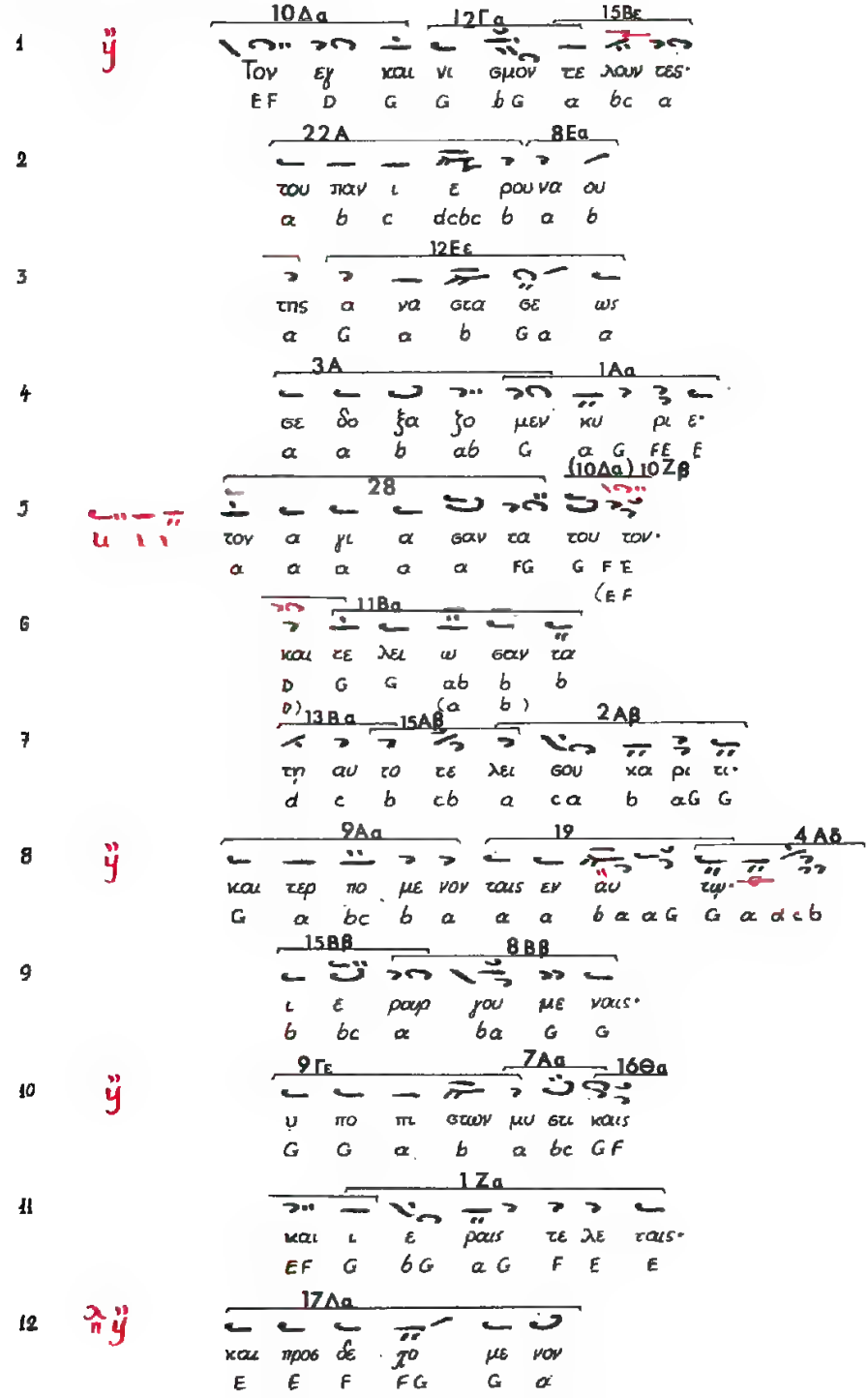
M. M. B. Tc. I, Sept. No 58
Sinai 1230, 10c.

ἀνδρέου

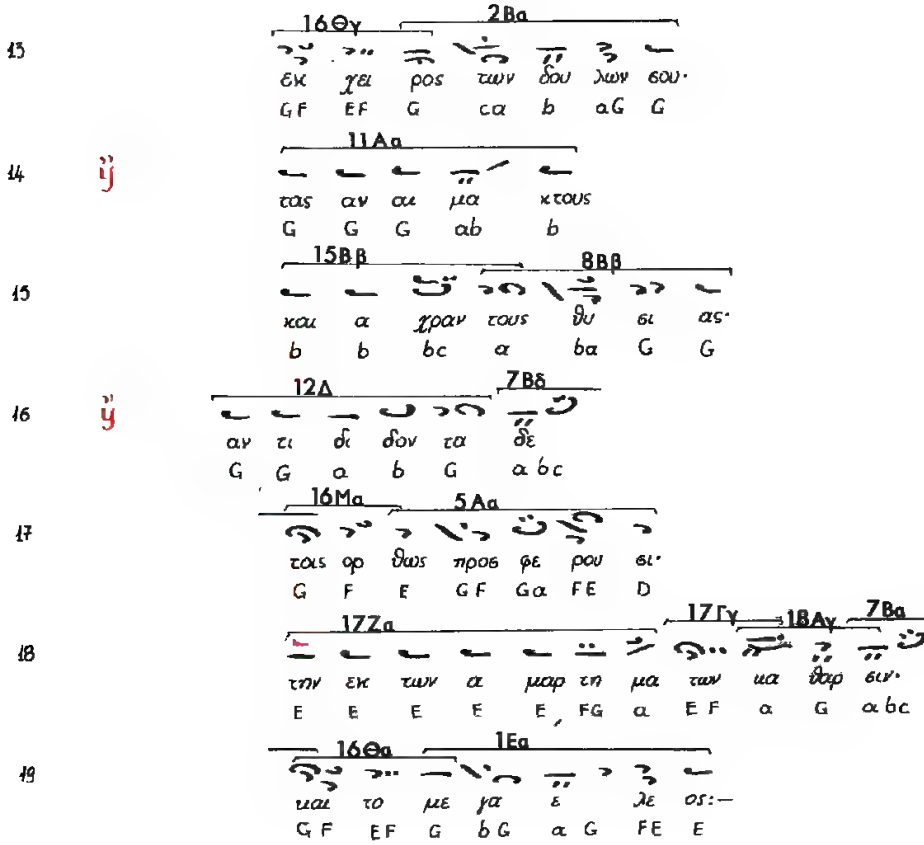


M.M.B. Tr. 1, Sept. No 44
Sinai 1230, 11 v.

τοῦ αὐτου (i.e. ἰωάννου μοναχου)

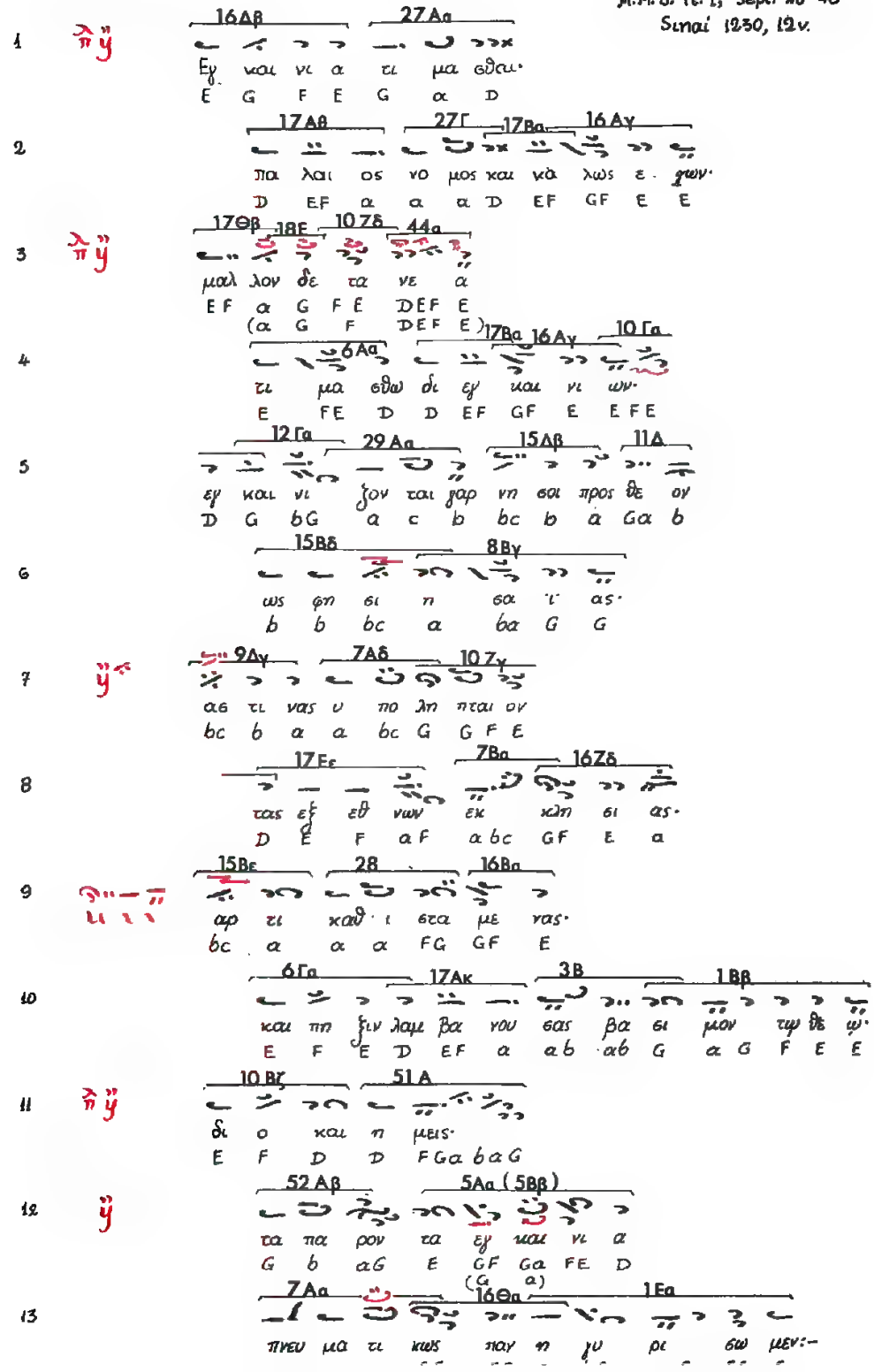


M.M.B. Tr. I, Sept. No 44
continued



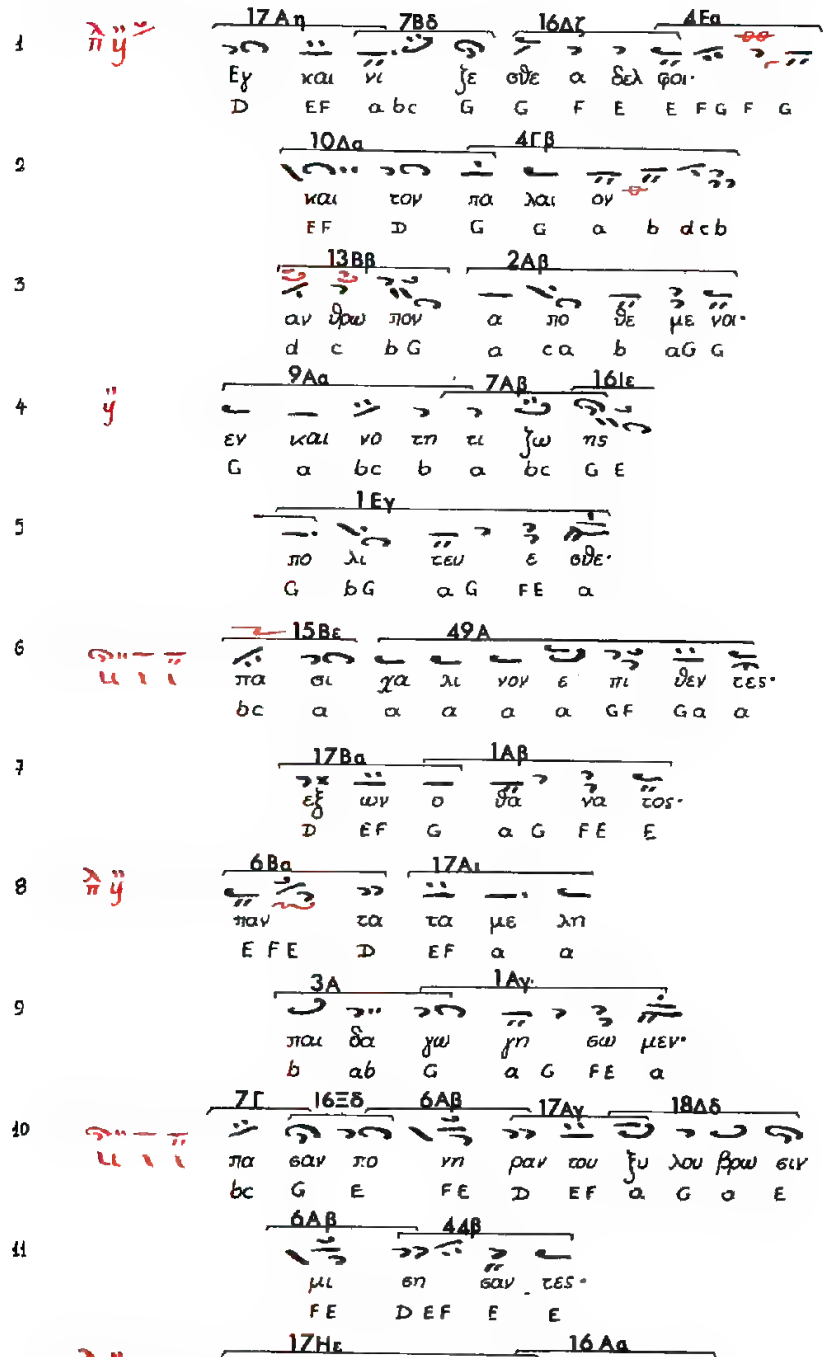
Ἰωάννου μοναχοῦ.

M.M.B. Tr. I, Sept. No 48
Sinai 1230, 12v.

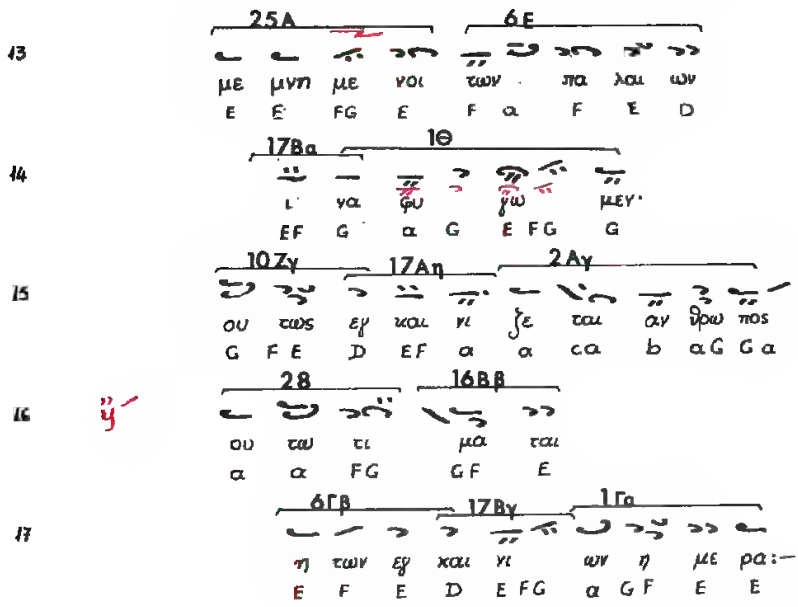


M.M.B. Tc. 1, Sept. No 49
Sinai 1230, 12v.

ἰωάννου μοναχοῦ

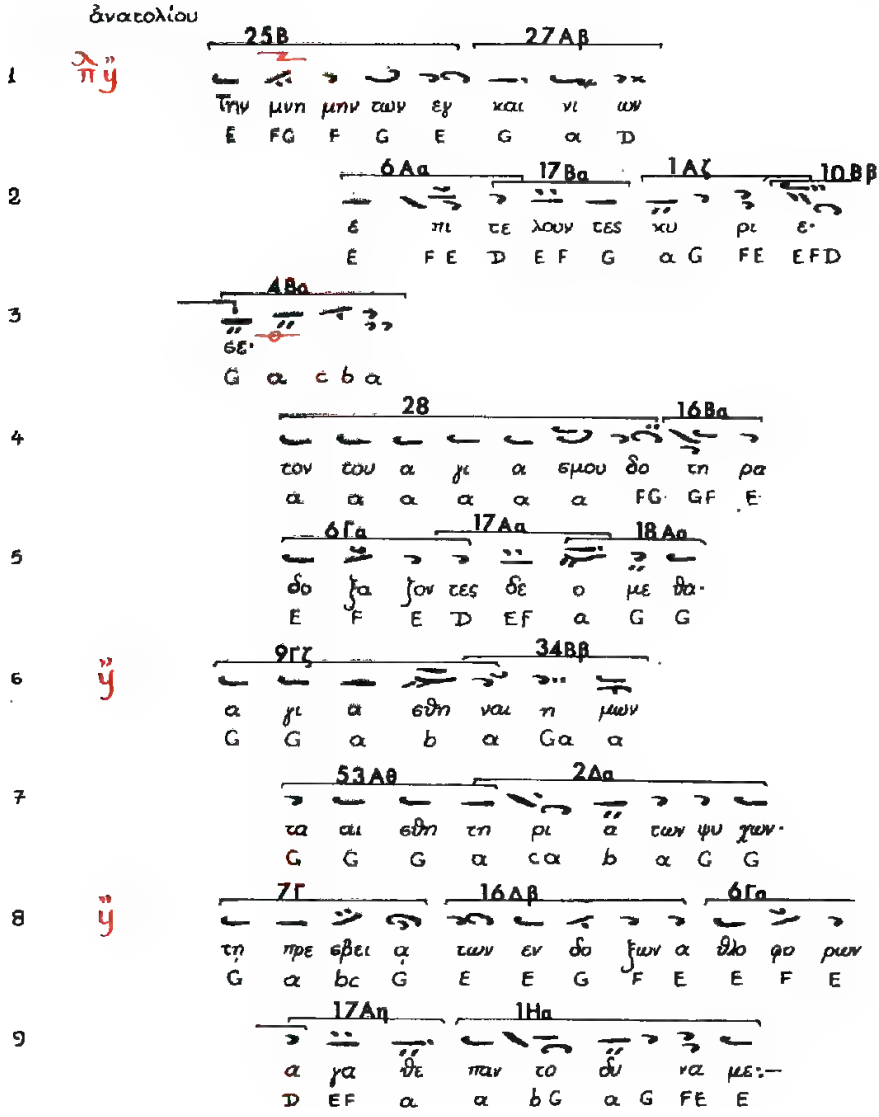


M.M.B. Tr. I, Sept. No 49
continued



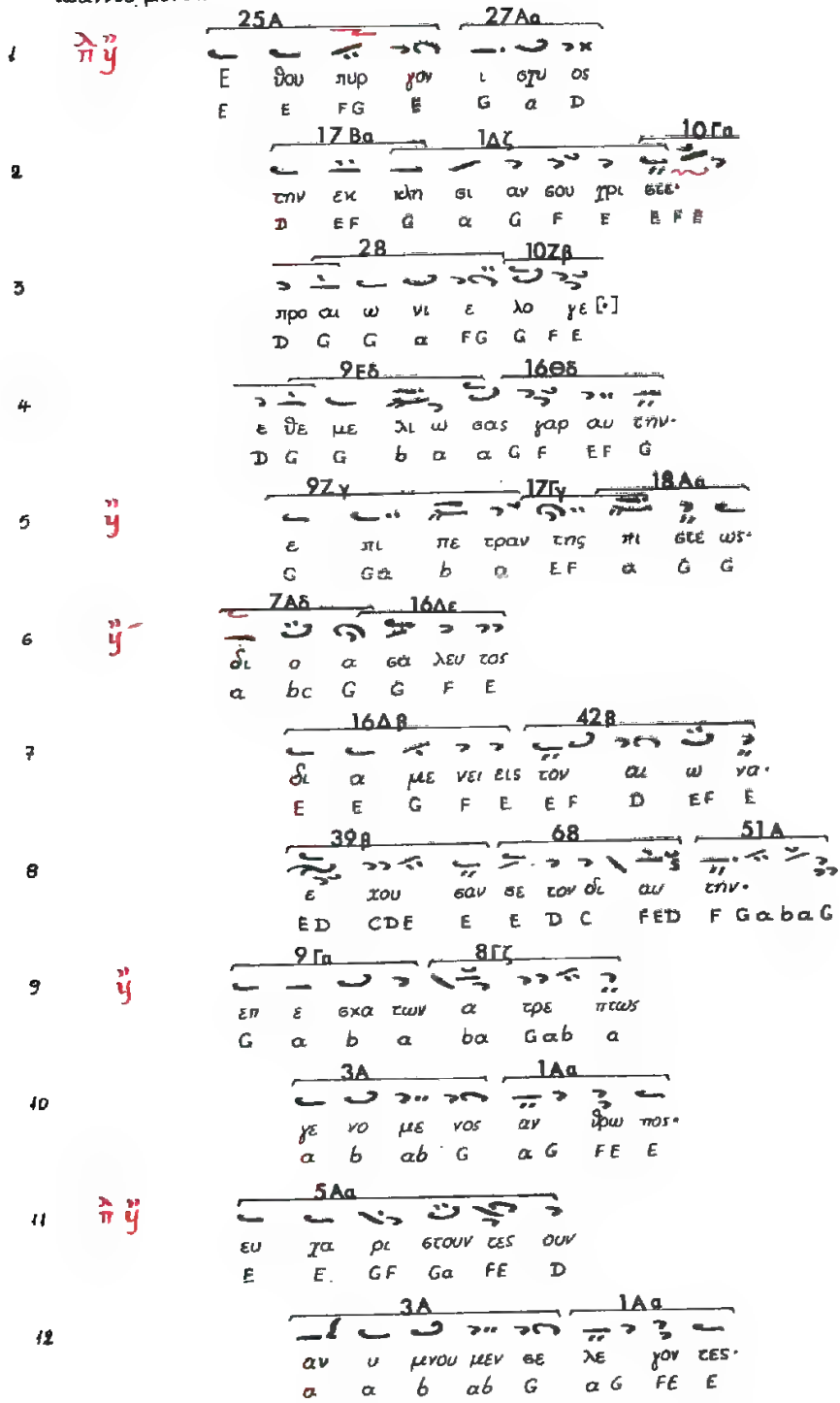
M.M.B. Tr. I, Sept. No. 50
Sinai 1230, 15 c.

Ἀνατολίου

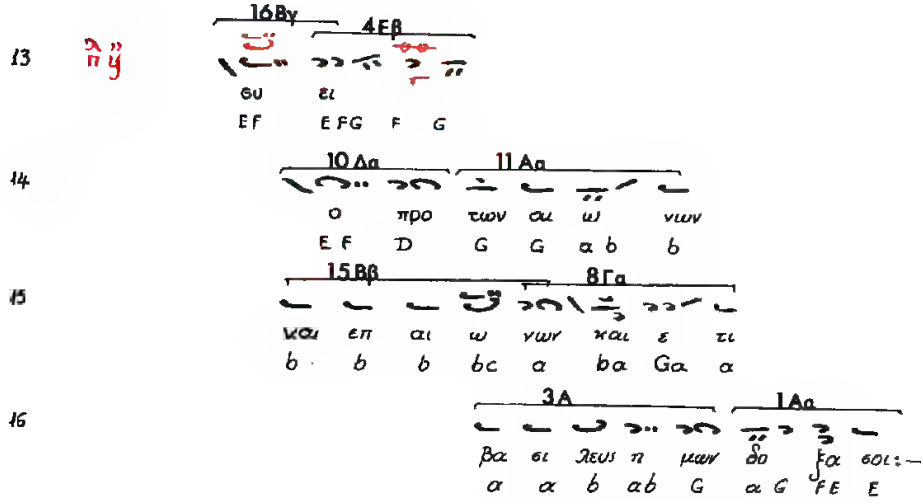


M.M.B. Tr. 1, Sept. No 51
Sinai 1230, 15c.

Ἰωάννου μοναχοῦ

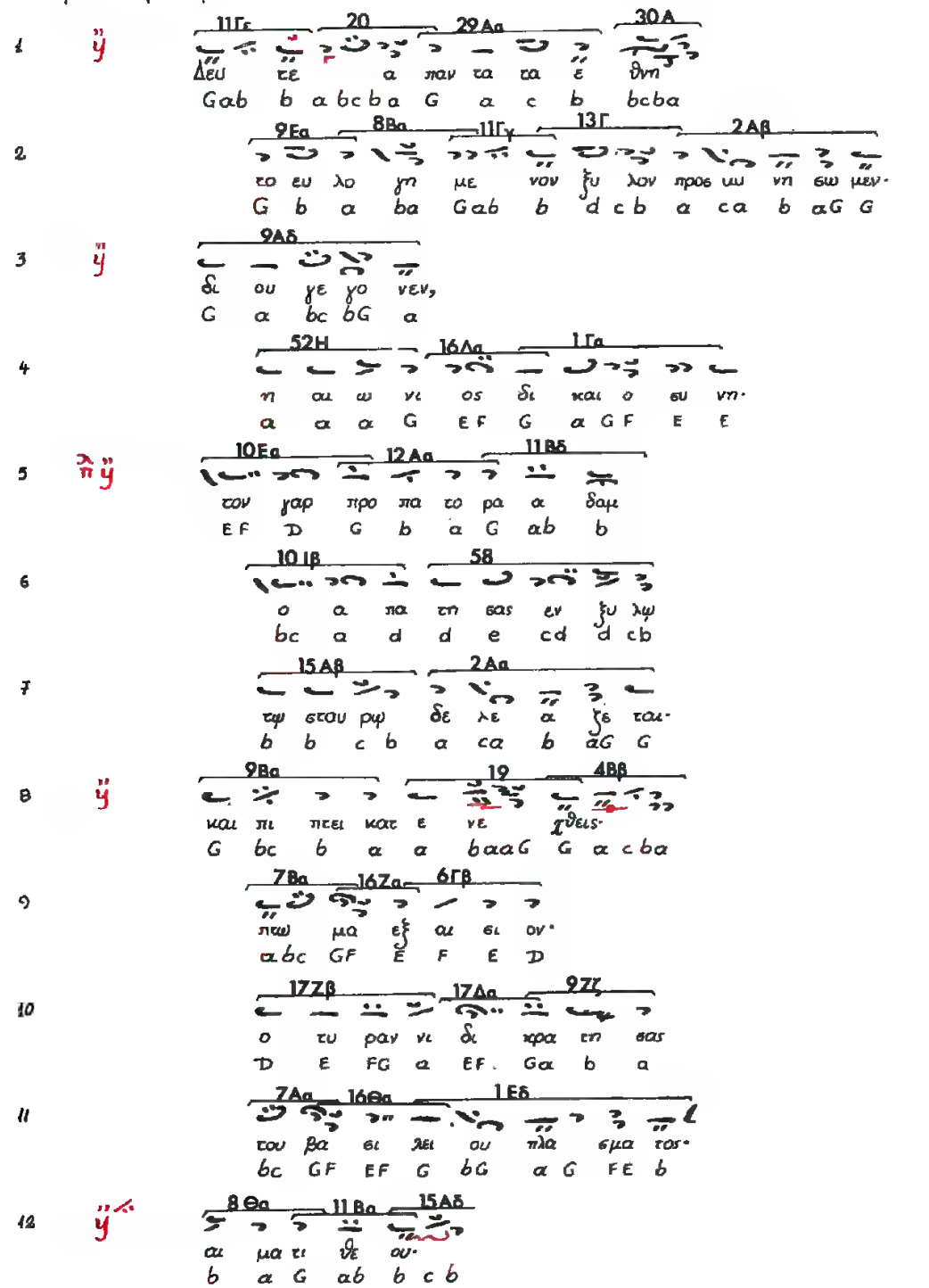


M.M.B. Tr. I, Sept. No. 51
continued

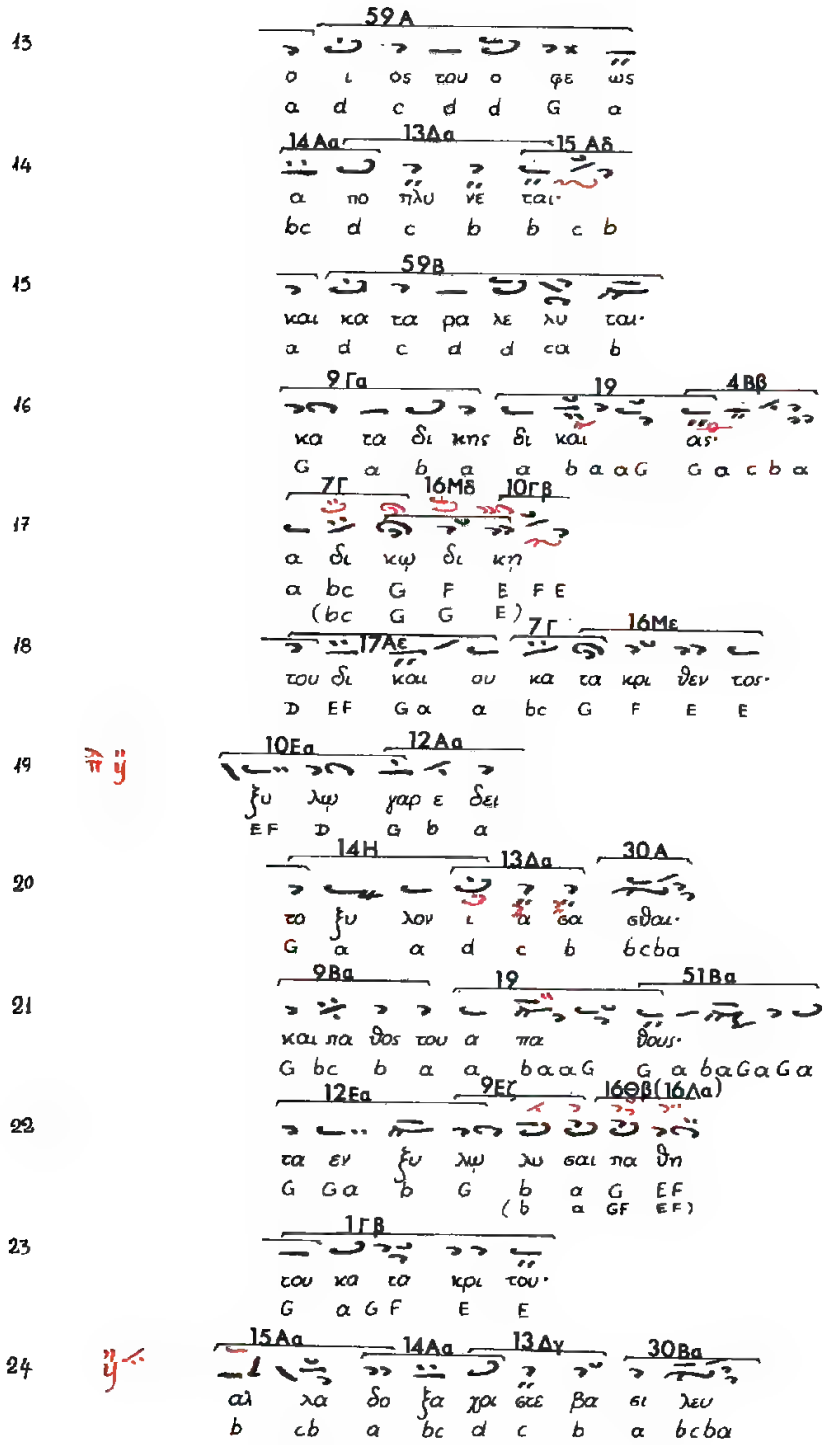


M.M.B. Tε. I, Sept. No 54
Sinai 1230, 14 c

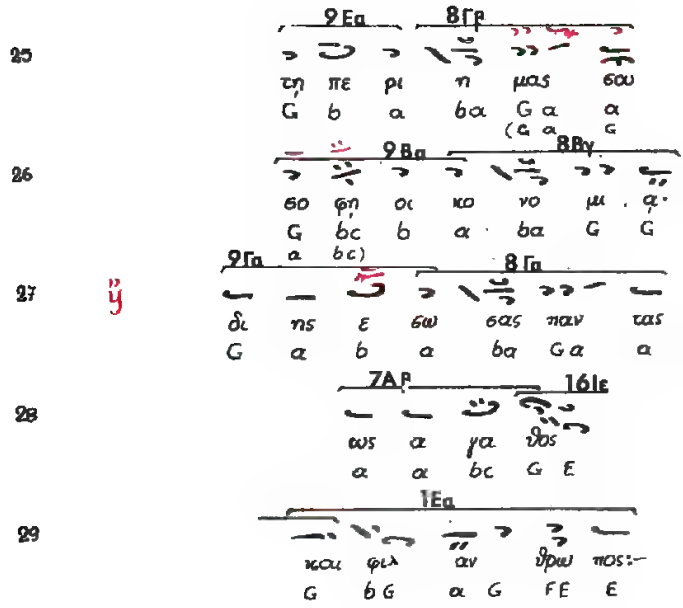
θεοφάνους πρωτοθρόνου



M. M. B. Tr. I, Sept. No 54
continued

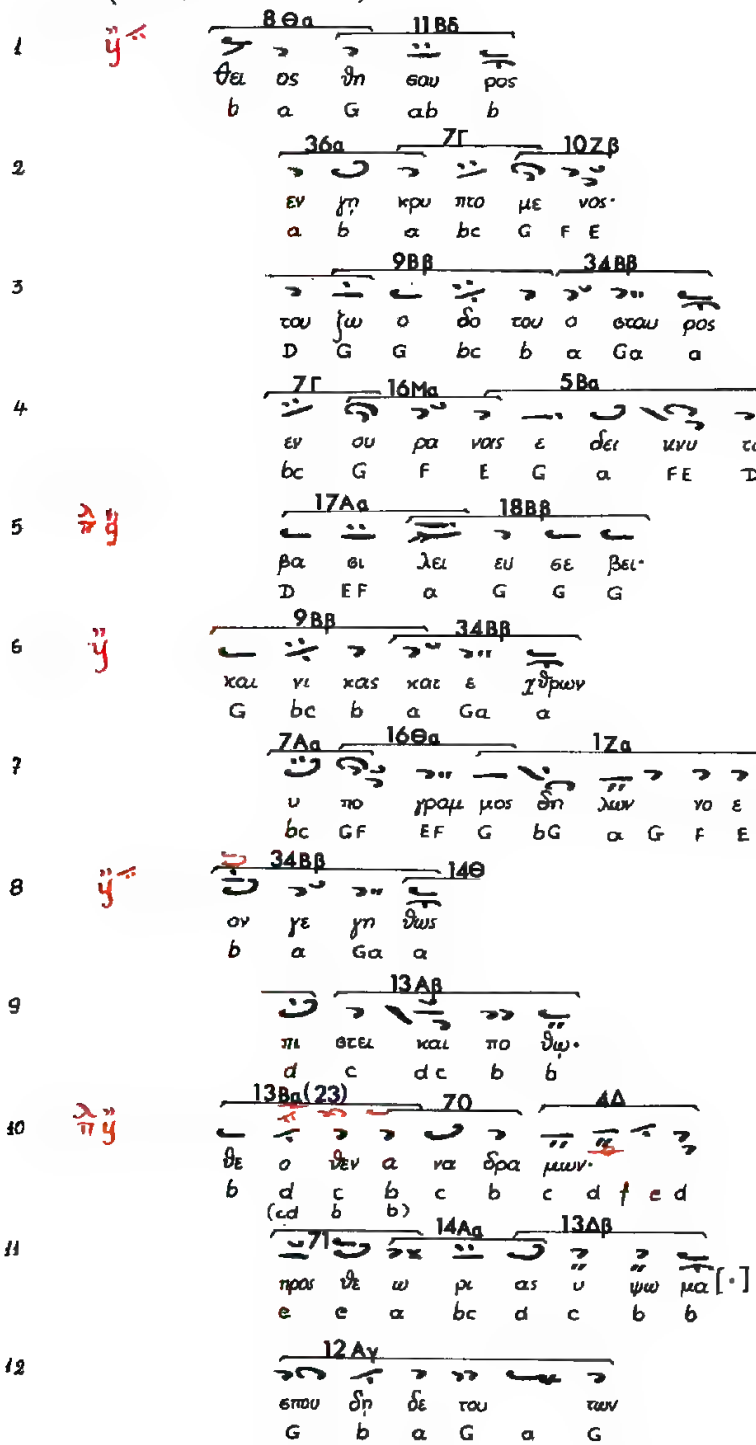


M.M.B. Tr. I, Sept. No 54
continued

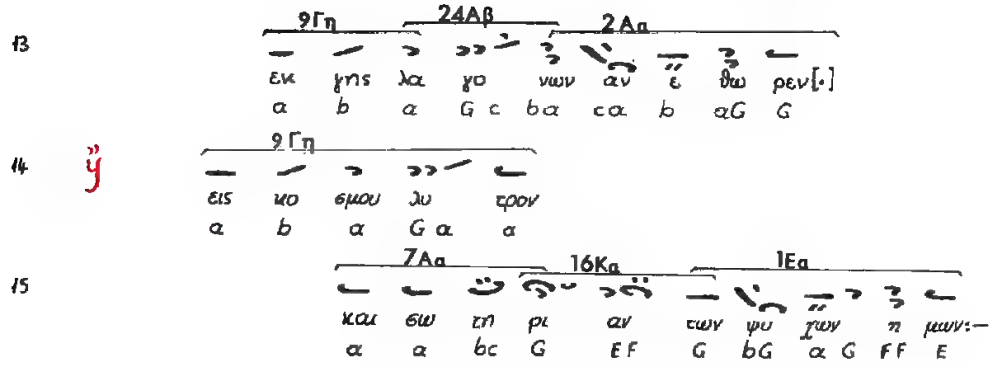


M.M.B. Tr. 1, Sept. No 55
Sinai 1250, 14 v.

τοῦ αὐτοῦ (i.e. θεοφάνους πρωτοθρόνου)

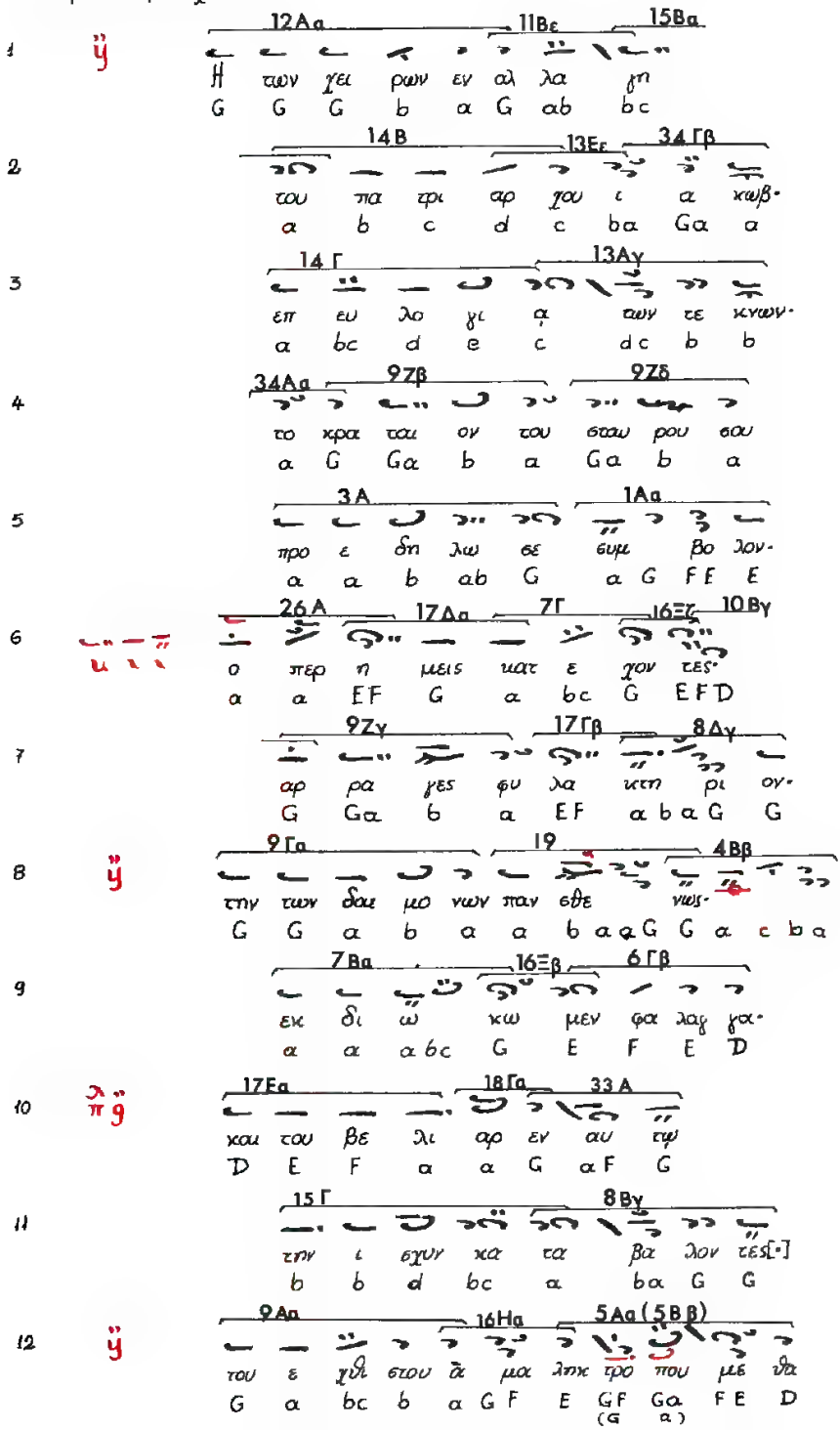


M. M. B. Tr. I, Sept. No 55
continued

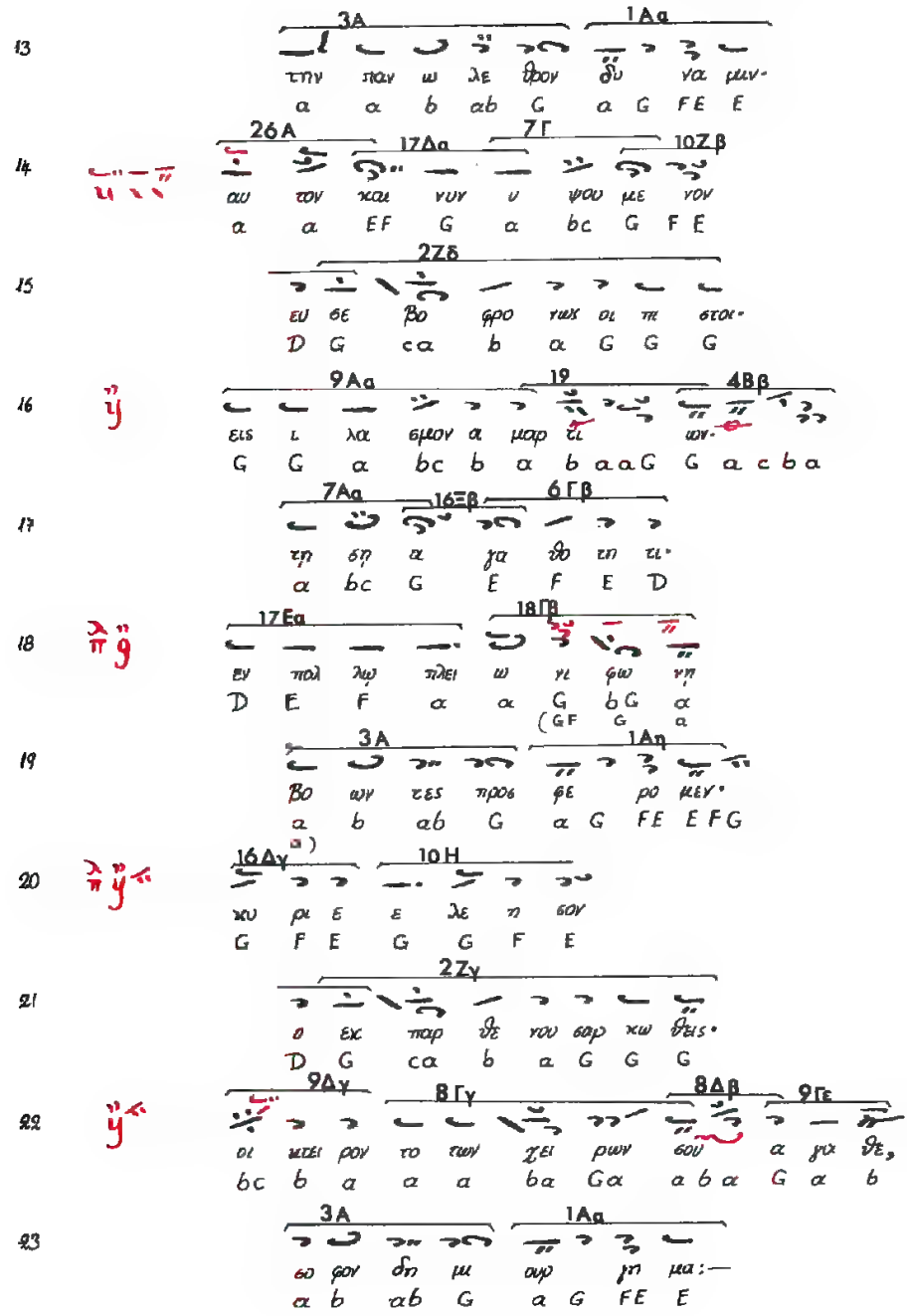


M.M.B. Tr. I, Sept. No 56
Sinai 1230, 14 v.

κυπριανοῦ μοναχοῦ

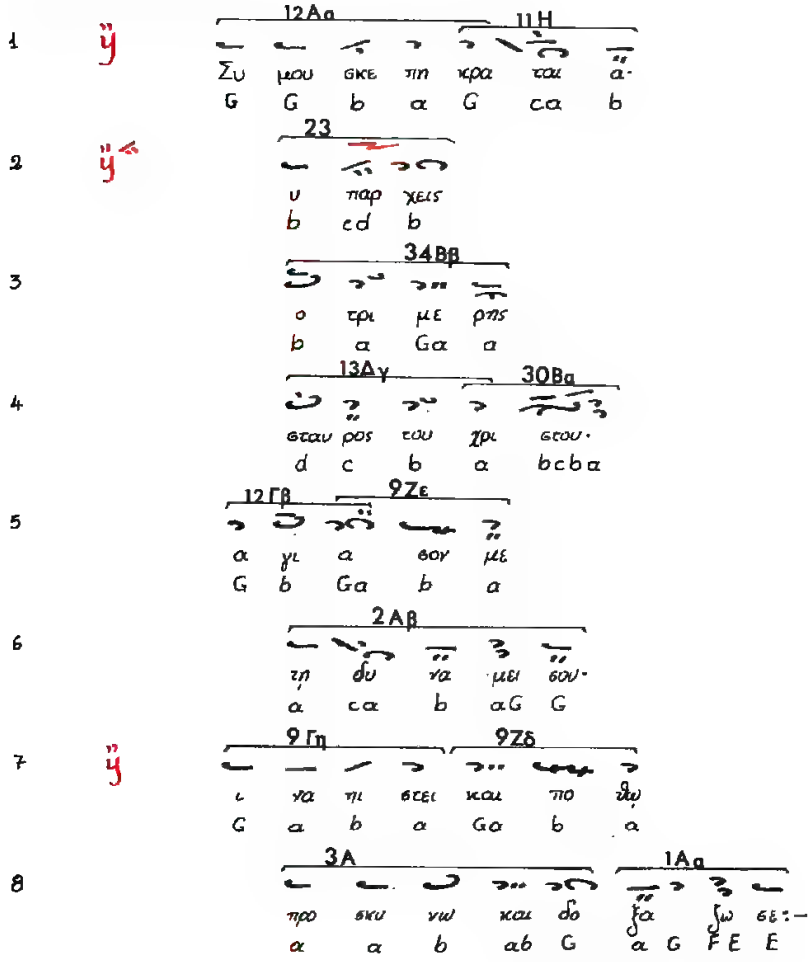


M.M.B. Tz. I, Sept No 56
continued



M. M. B. Tc. I, Sept. No 57
Sinai 1250, 15c.

Ἰωάννου μοναχοῦ



βυζαντίου

M. M. B. Tr. I, Sept. No 64
Sinai 1230, 16 v.

1 λπ ÿ
39a
Ση με ρον
ED CDE E

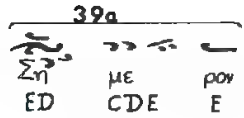
2
40a
ξυ λον ε φα νε ρω θη·
EF ED C D F E E

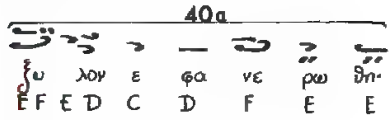
3 λπ ÿ
39β
ση με ρον
ED CDE E

4
17Θβ 18Δδ 6Aβ 44γ
γε νος ε βραι ων απ ω λε το·
EF a G a E FE DEF E E

5 λπ ÿ
39a
ση με ρον
ED CDE E

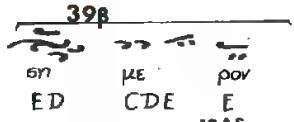
6
10Ea 28 16E
δι α πι στων βα σι λε ων
EF D G G a FG G FE

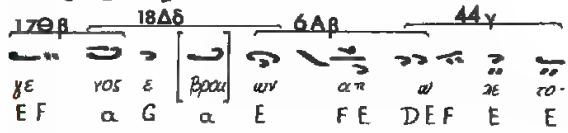




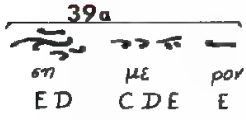
7
40β 10Ba
η πι σις φα νε ρου ται·
EF ED C D F E EF

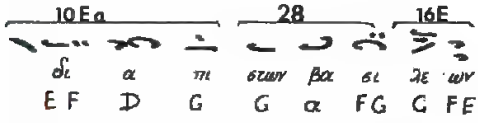
8
4Bβ
και ο α δαμ·
D G G G a c b a

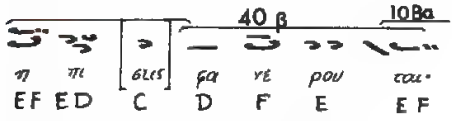


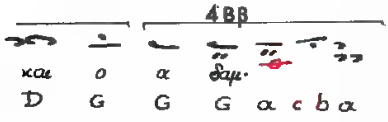


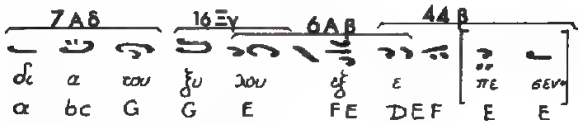
9
7Aδ 16Ξγ 6Aβ 44β
δι α του ξυ λου εξ ε πε σεν·
a bc G G E FE DEF E E



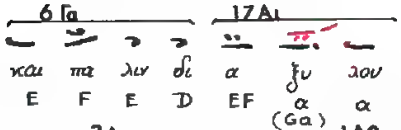




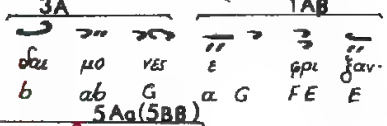




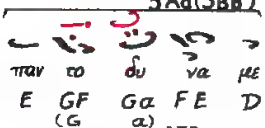
10 λπ ÿ
6Γa 17Aι
και πα λιν δι α ξυ λου
E F E D EF a a
(Ga)



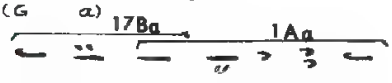
11
3A 1Aβ
δαι μο νες ε φρι ξαν·
b ab G a G FE E



12 λπ ÿ
5Aa(5Bβ)
παν το δυ να με
E GF Ga FE D
(G a)

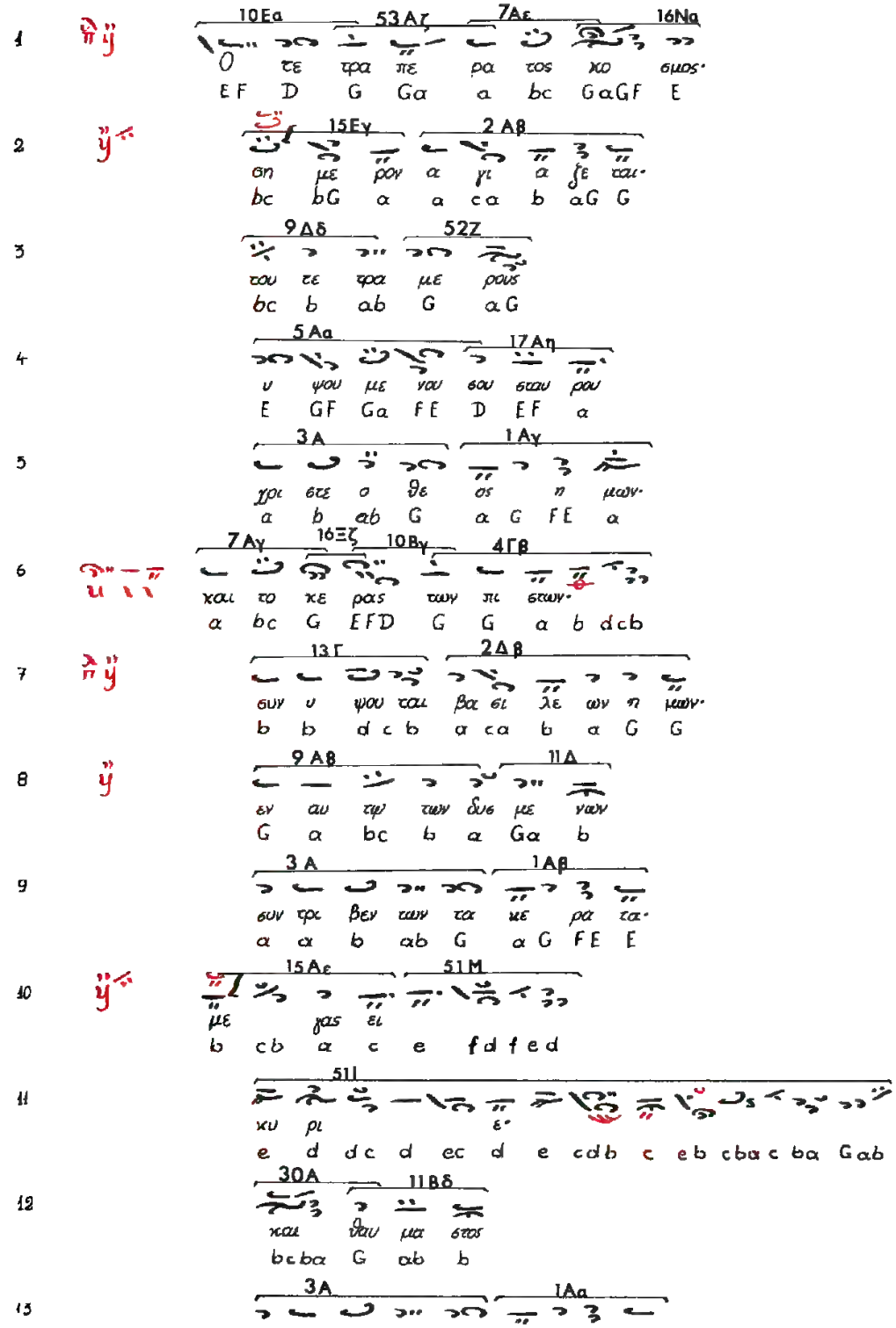


13
17Ba 1Aa



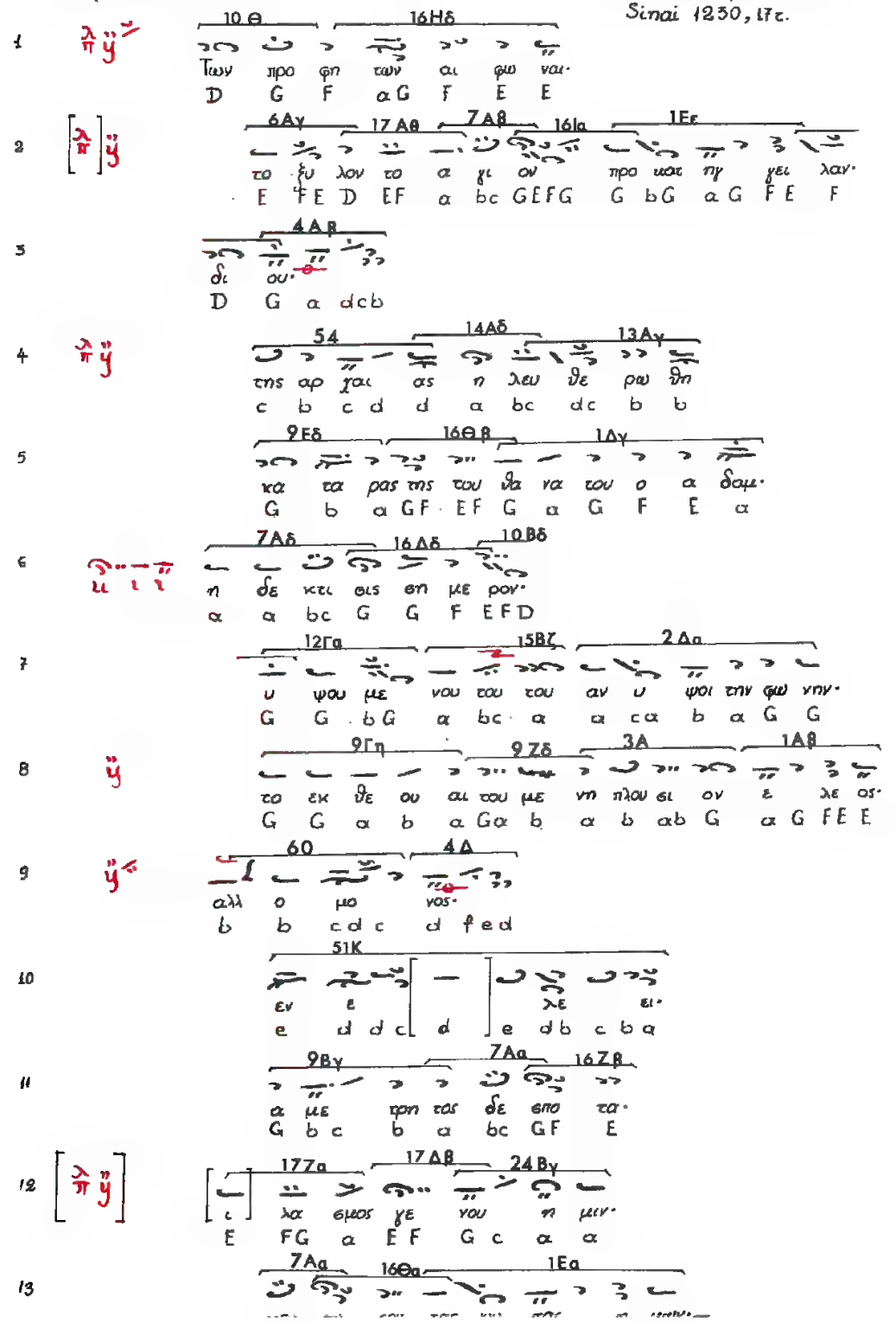
M.M.B. Tr. 1, Sept. No 65
Sinai 1230, 17c.

λέοντος δεσπότου



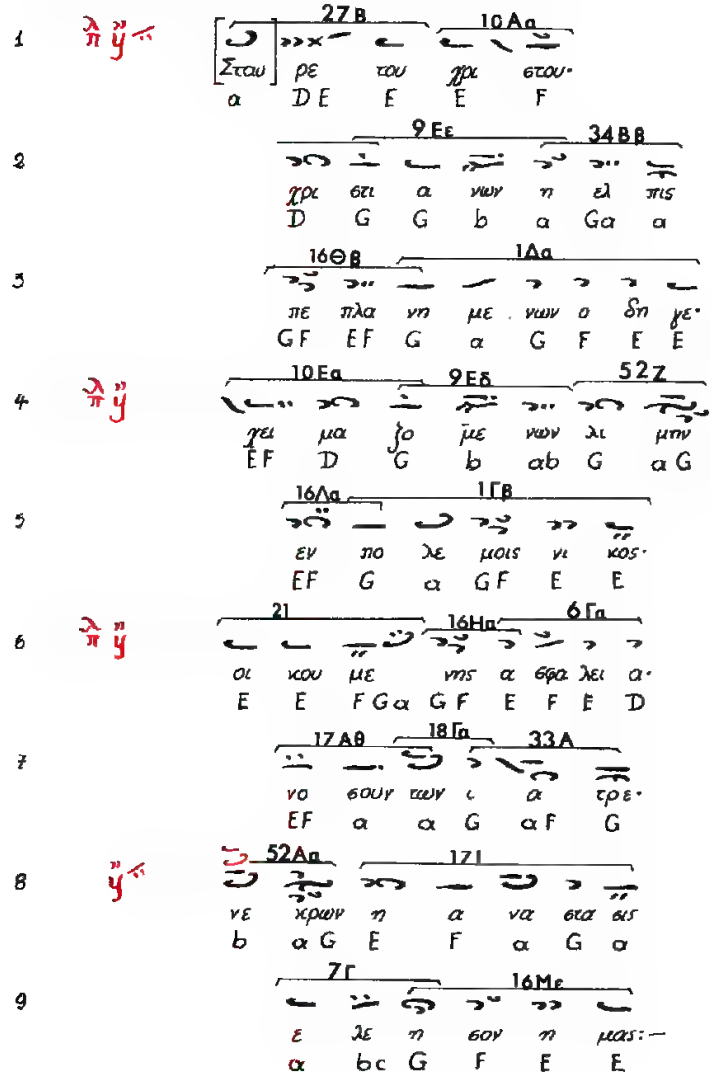
τοῦ αὐτοῦ (i.e. λεγετος δεσπότου)

M.M.B. Tc. I, Sept. No 66
Sinai 1230, 17c.



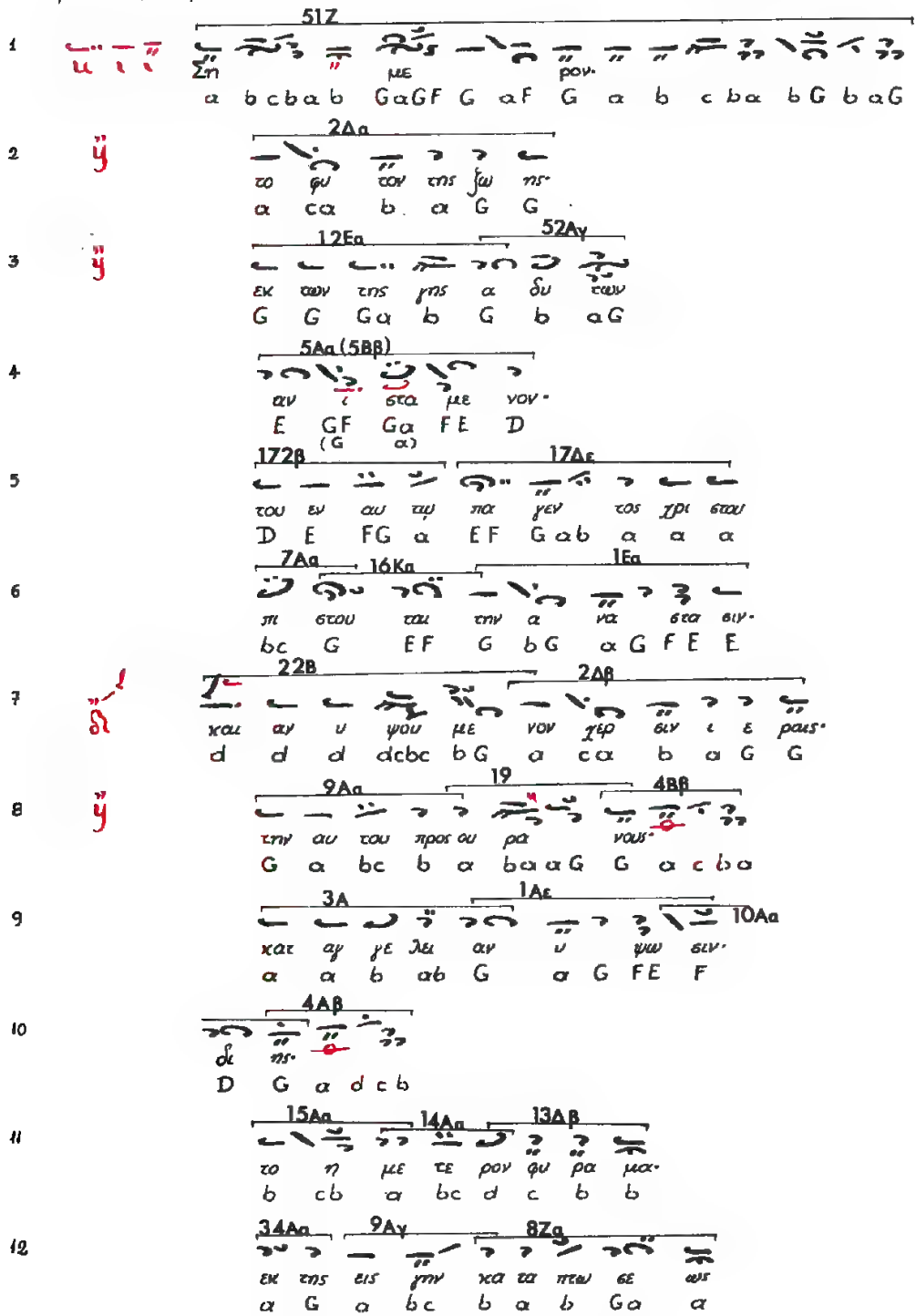
M.M.B. Tr. I, Sept. No. 67
Sinai 1230, 17c.

τοῦ αὐτοῦ (i.e λέοντος δεσπότου)

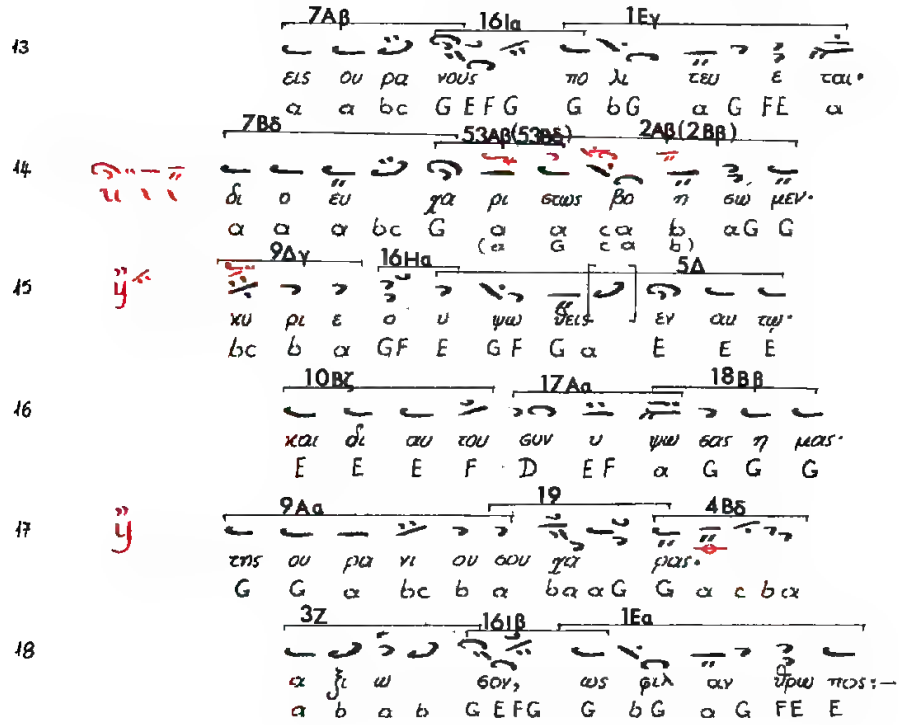


M. M. B. Tr. I, Sept No 68
Sinai 1230, 17v.

Θεοφάνους πρωτοψάλτου

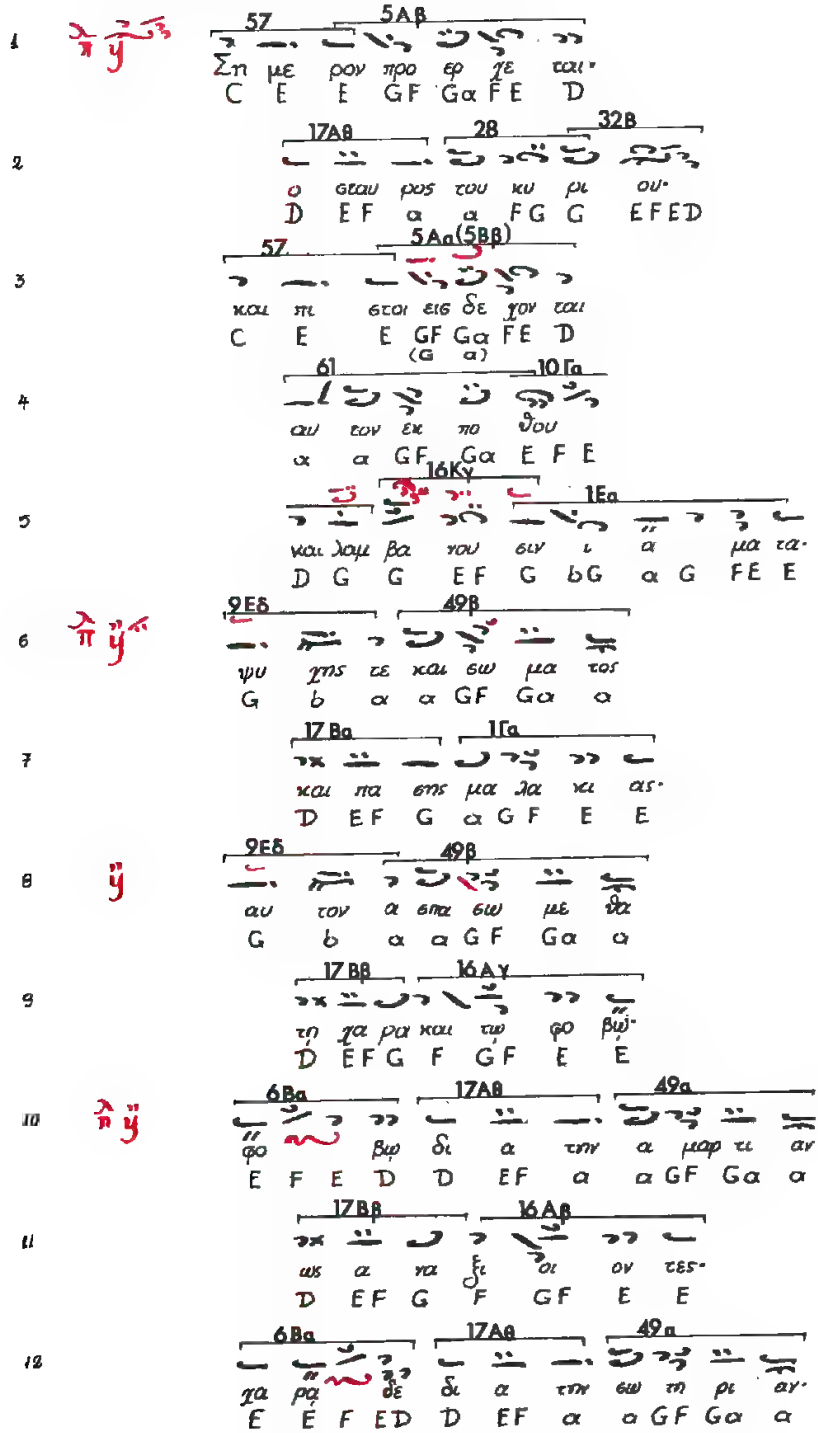


M. M.B. Tr.I, Sept. No 68
continued

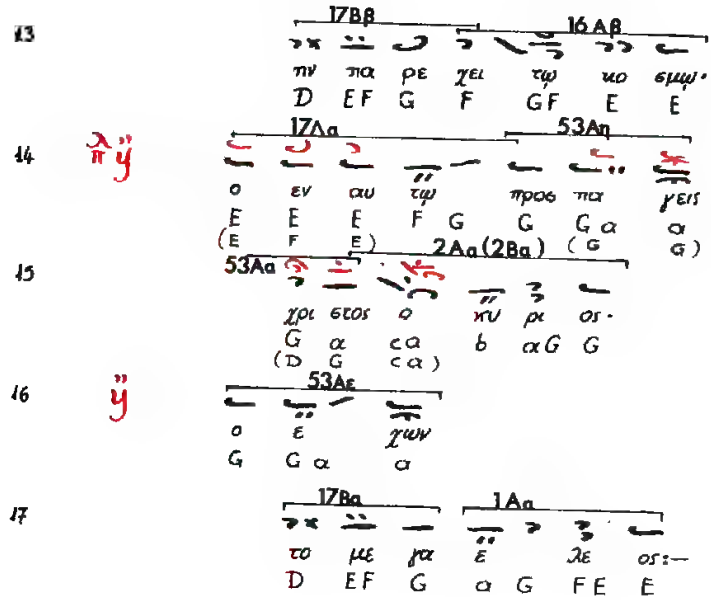


M.M.B. Tr. 1, Sept. No 69
Sinai 1230, 17 r.

Βυζαντίου

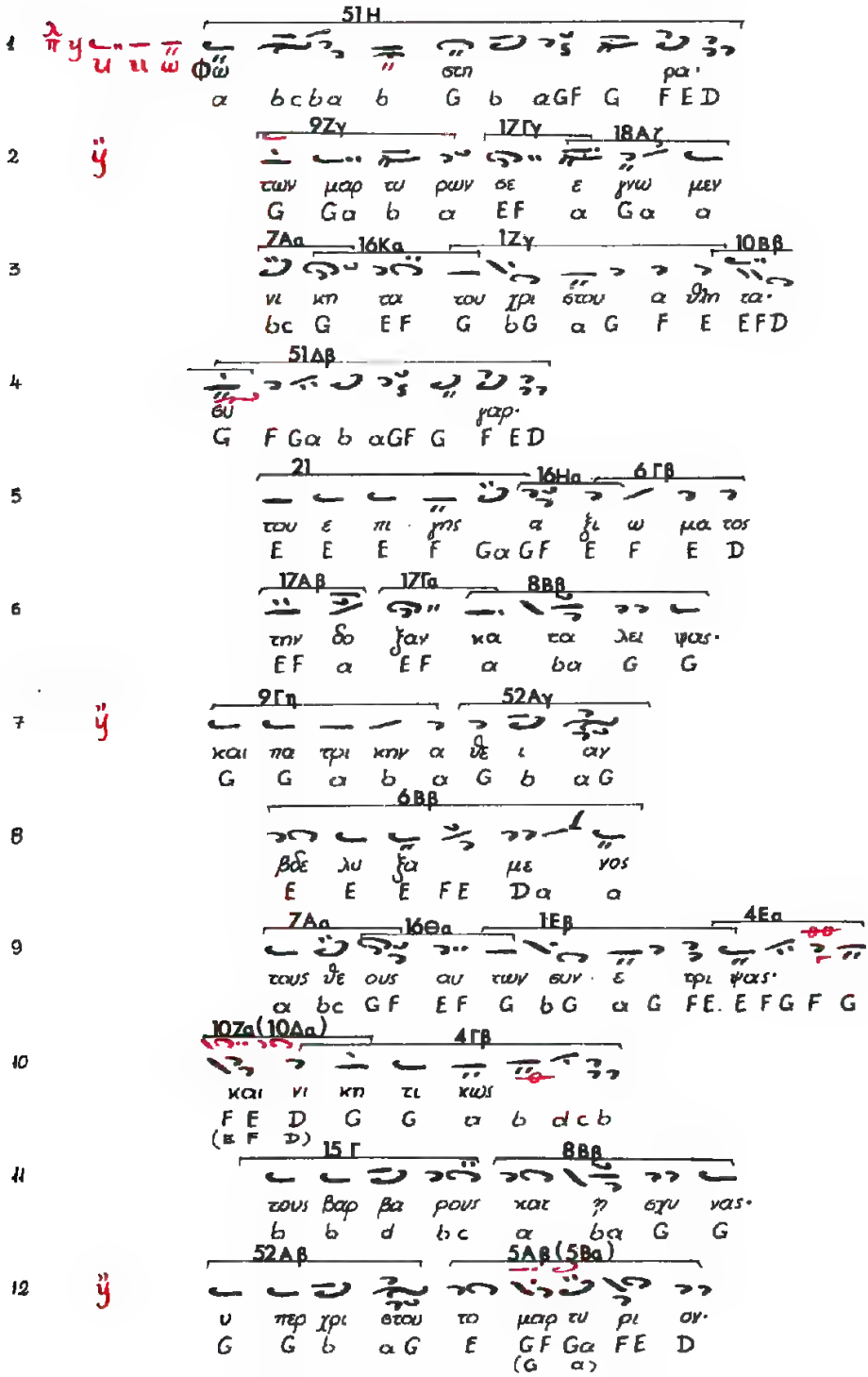


M.M.B. Tr. I, Sept. No 69
continued

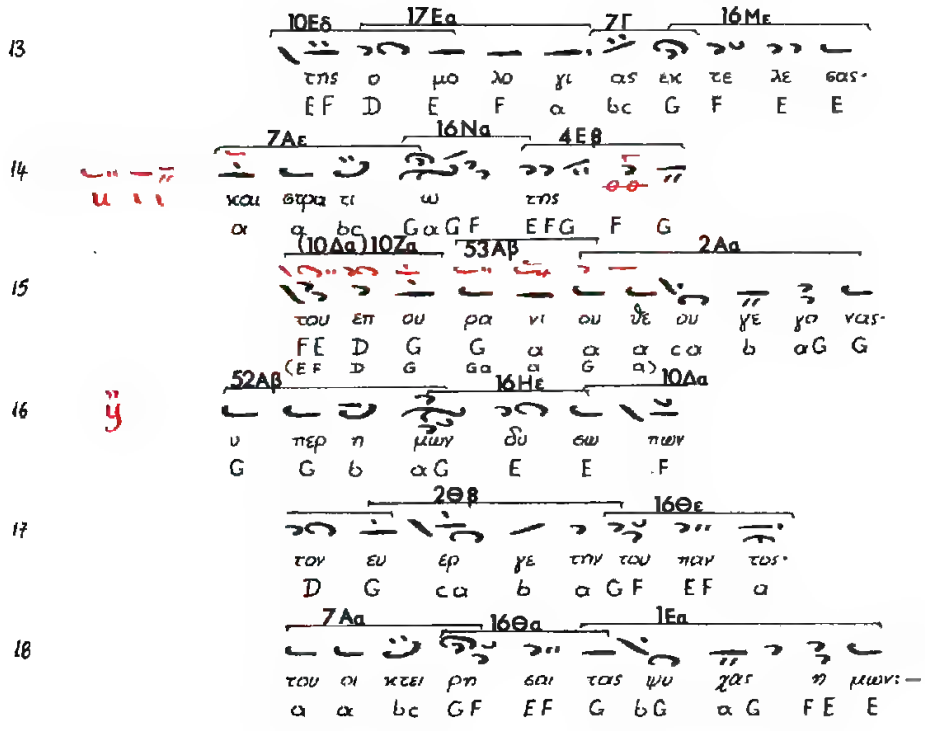


M. M. B. Tr. I, Sept. No 72
Sinai 1230, 18v.

κωνσταντίνου δεσπότου

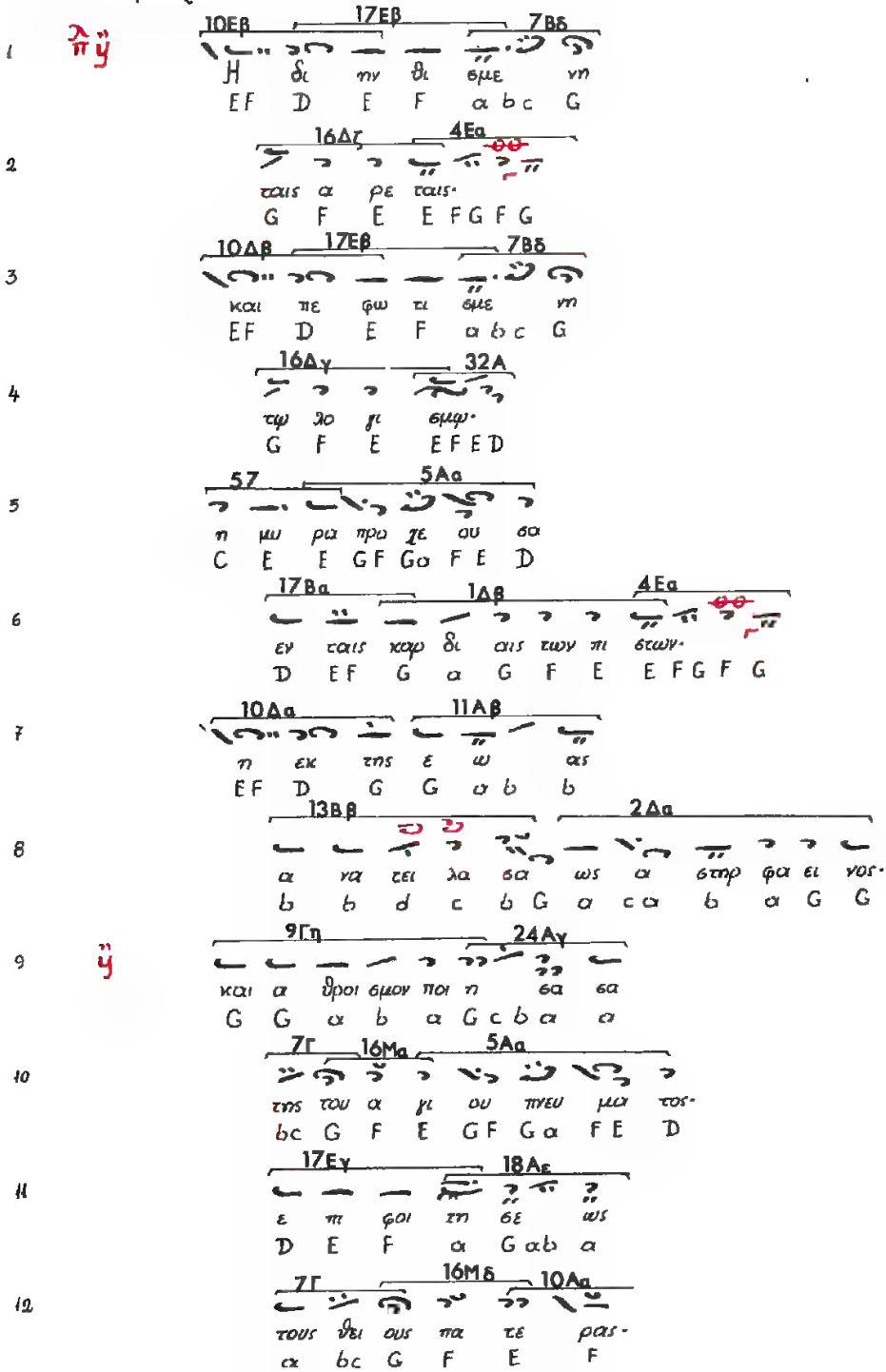


M.M.B. Tc.I, Sept No 72
continued

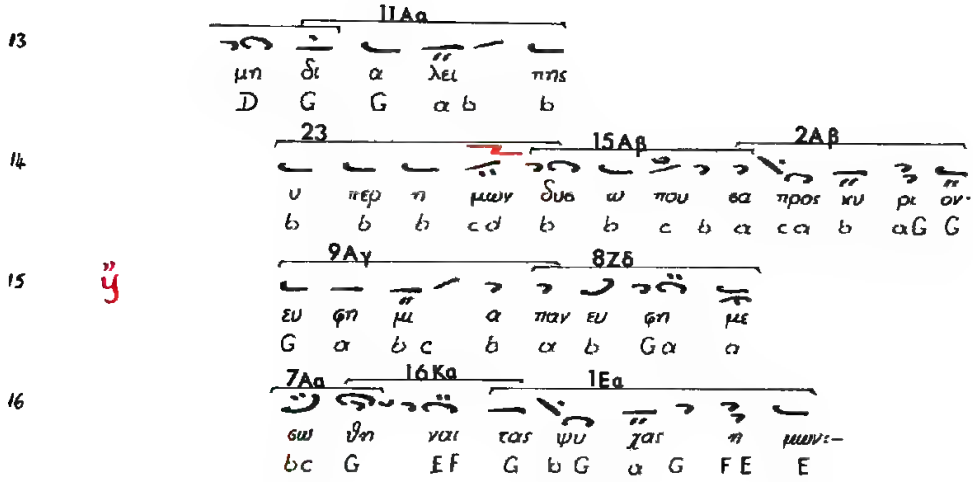


M. M.B. Τε. I, Sept. No 78
Sinai 1230, 20ε.

καθίσας μοναχῆς

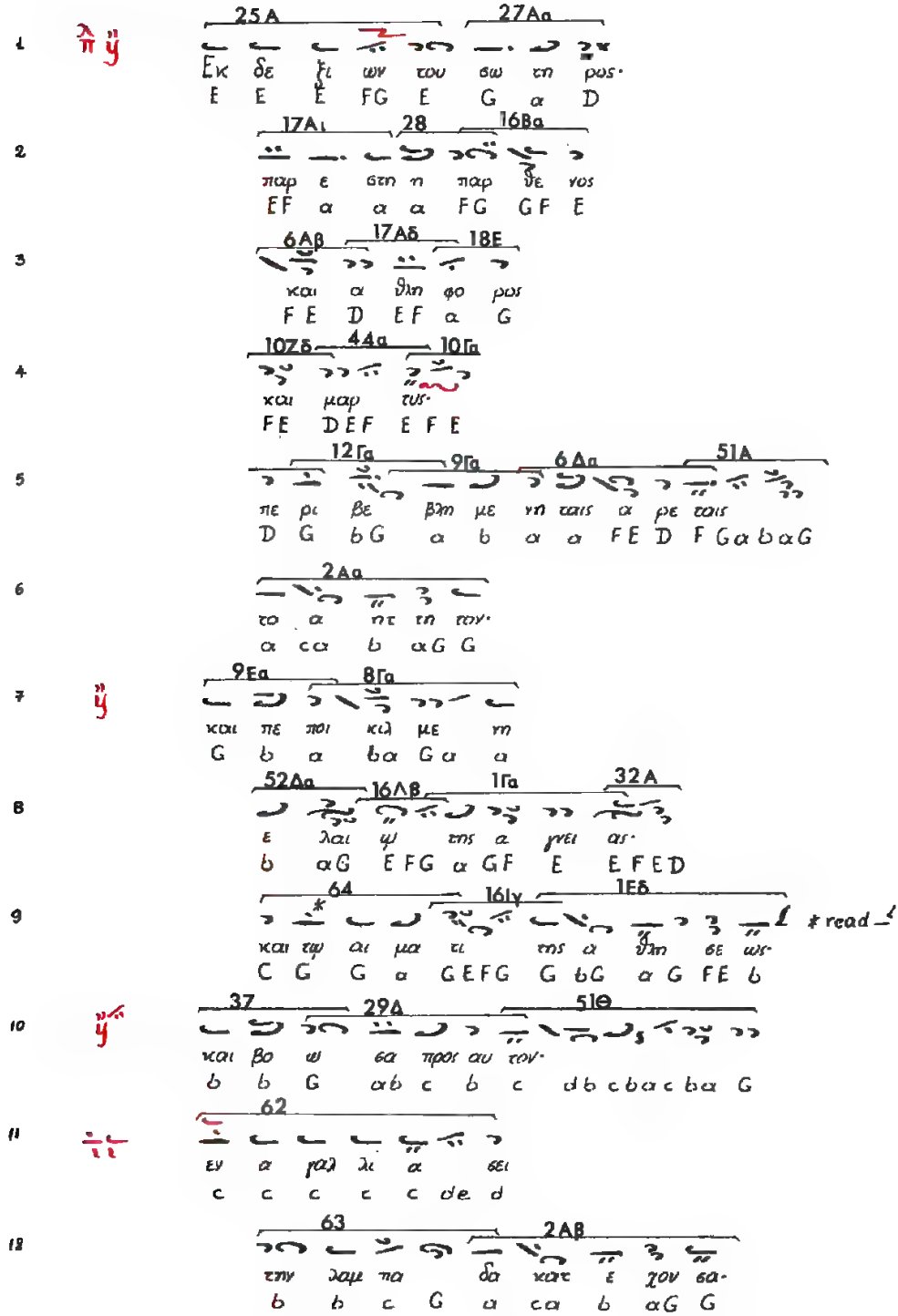


M. M. B. Tr. I, Sept. No 78
continued

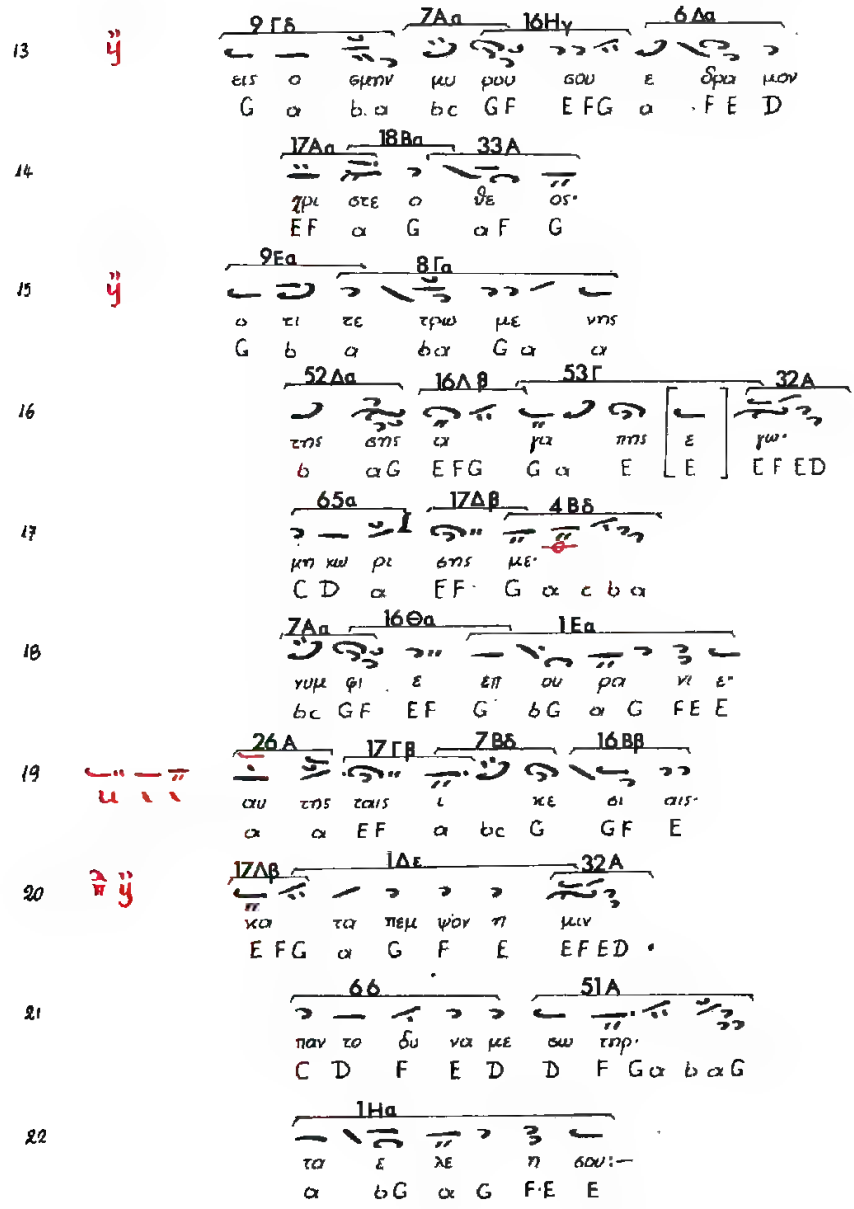


M.M.B. Tc. I, Sept. No 79
Sinai 1230, 20c.

Ἰωάννου μοναχοῦ

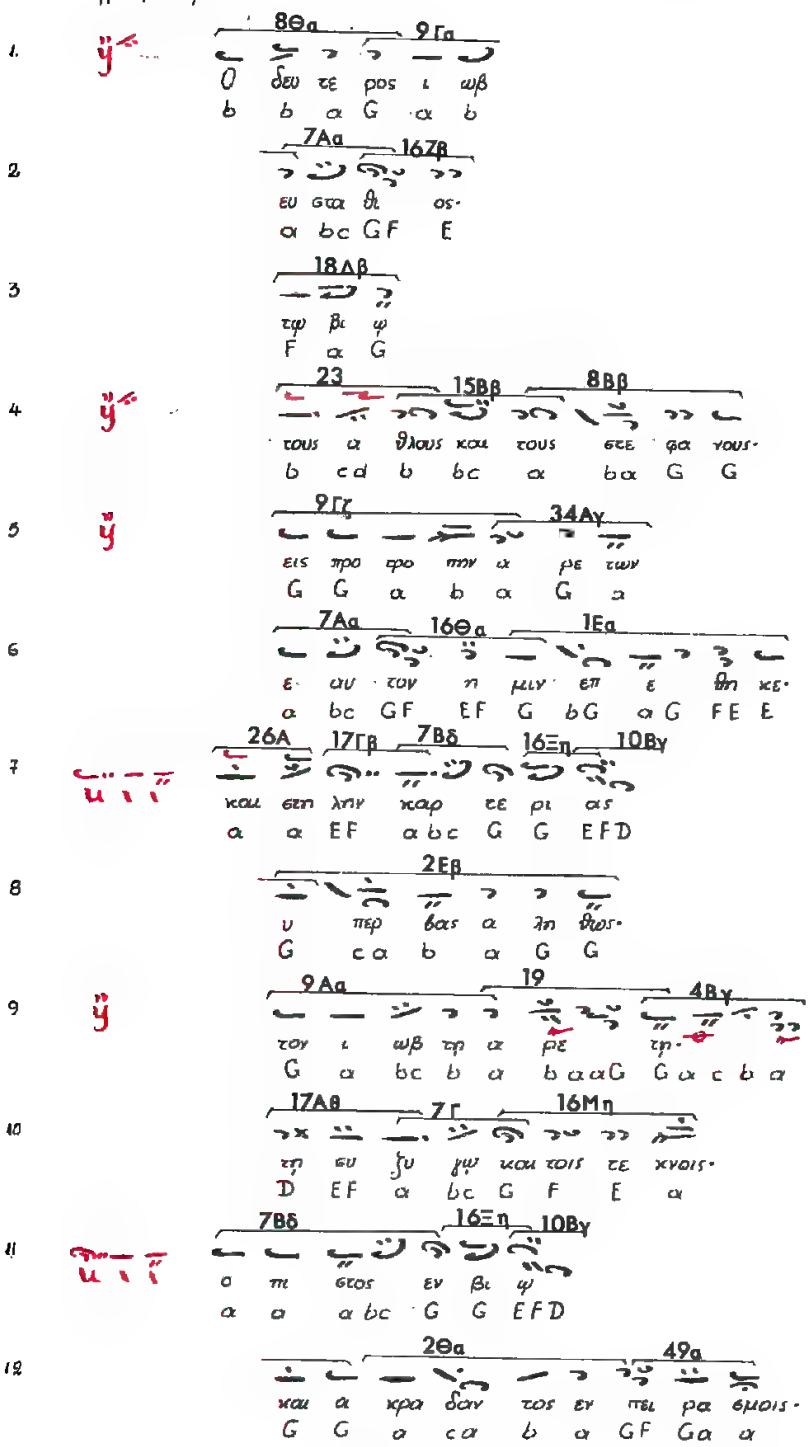


M.M.B. Tr.I, Sept. No 79
continued

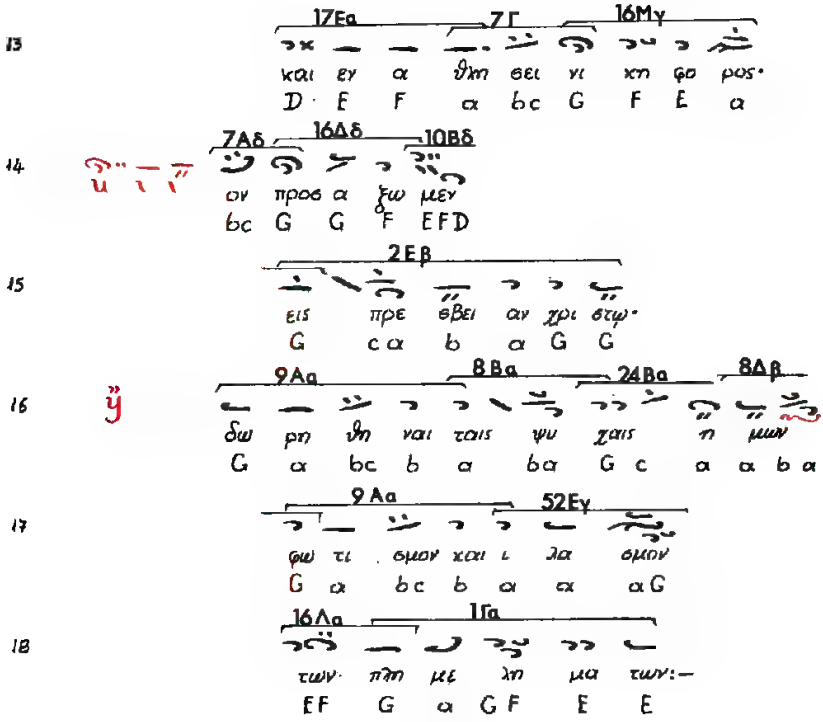


M.M.B. Tt. 1, sept. No 81
Sinai 1230, 20v

ἐφραὶμ καρείας

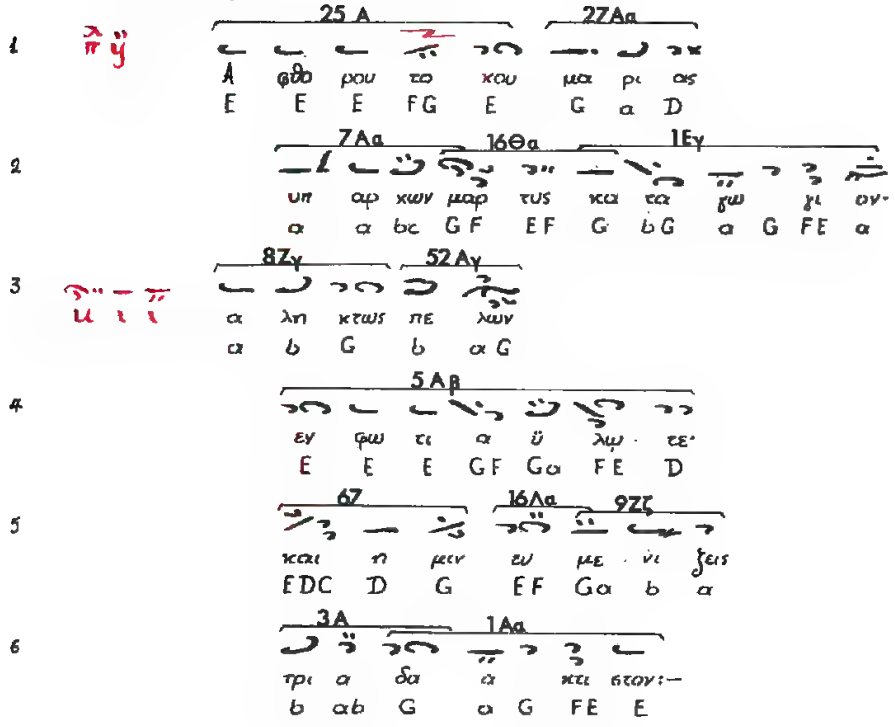


M.M.B. Tr. I, Sept. № 81
continued



M.M.B. Tr. I, Sept. No 83
Sinai 1230, 21 c.

ἀνδρέου πύργου



ἐφραίμ καρείας

M.M.B. Tr. I, Sept. No 84
Sinai 1230, 21 r.

1 17 Αγ 16 Ηδ
Α δα μαν τι νε την ψυ κην·
D EF α F αG F E E

2 15 Δα 16 Ηα
πως σε κατ α ξι αν
bc b αb G α GF

3 5 Αβ
επ αι νε σω μεν·
E GF Gα FE D

4 17 Αβ 17 Γα 8 Βγ
την γαρ φυ σιν υ· περ ε βης·
D EF α EF α bα G G

5 9 Εα 8 Γβ
χρη μα των και παι δων
G b α bα Gα α

6 6 Δβ 17 Αδ 18 Ε 10 Ζδ 44 β
και της συμ βι ου στε ρου με νος·
FE D EF α G FE DEF E E

7 28 10 Βγ
την μα κα ρι αν ε κει νην
α α α α α FG G EFD

8 2 Θβ 49 α
και α οι δι ον φω νην
G cα b α GF Gα α

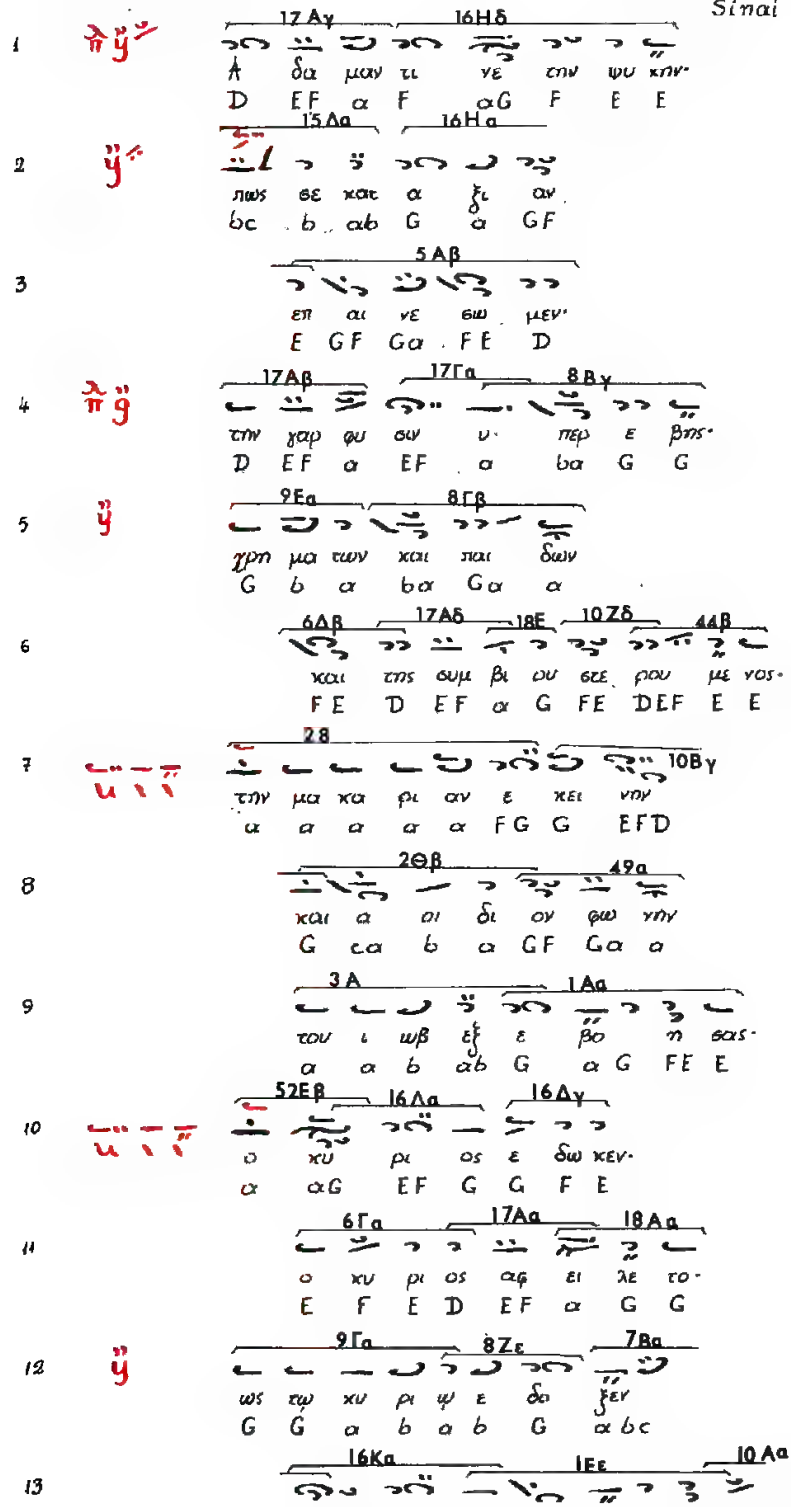
9 3 Α 1 Αα
του ι ωβ εξ ε βο η σας·
α α b αb G α G FE E

10 52 Εβ 16 Λα 16 Δγ
ο κυ ρι ος ε δω κεν·
α αG EF G G F E

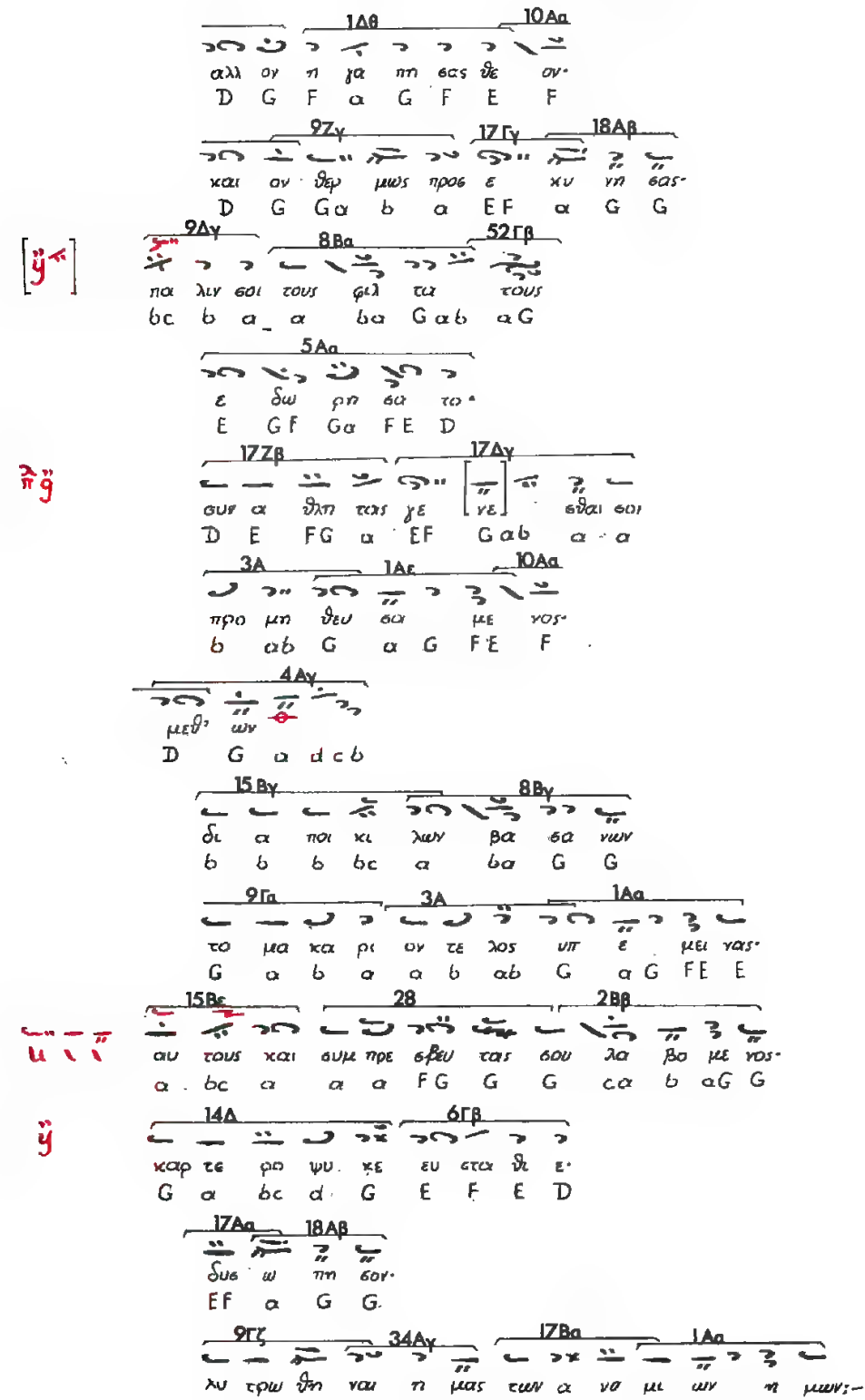
11 6 Γα 17 Αα 18 Αα
ο κυ ρι ος αφ ει λε το·
E F E D EF α G G

12 9 Γα 8 Ζε 7 Βα
ως τω κυ ρι ψ ε δο ξεν
G G α b α b G α bc

13 16 Κα 1 Εε 10 Αα

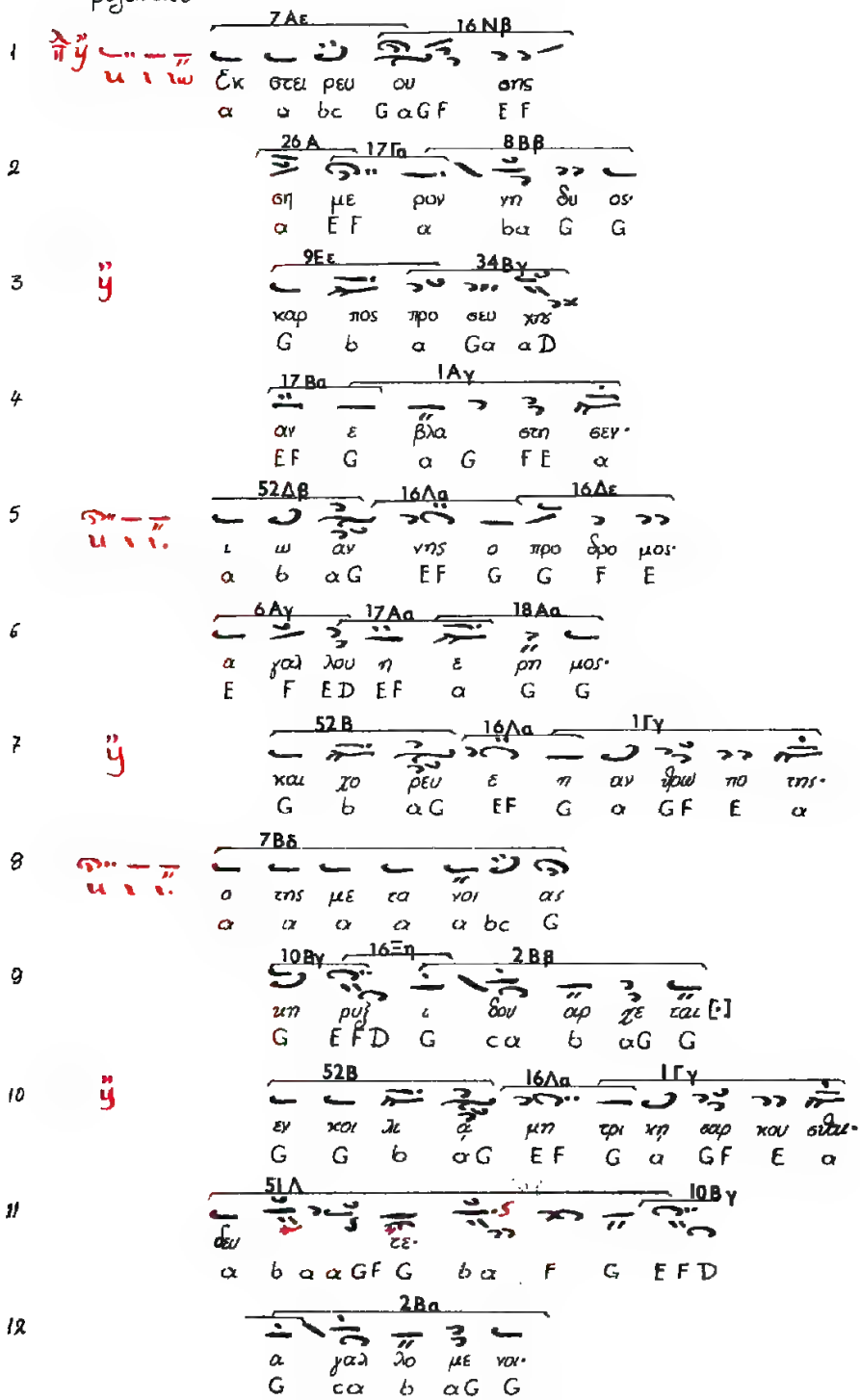


M.M.B. Tr. I, Sept. No 84
continued

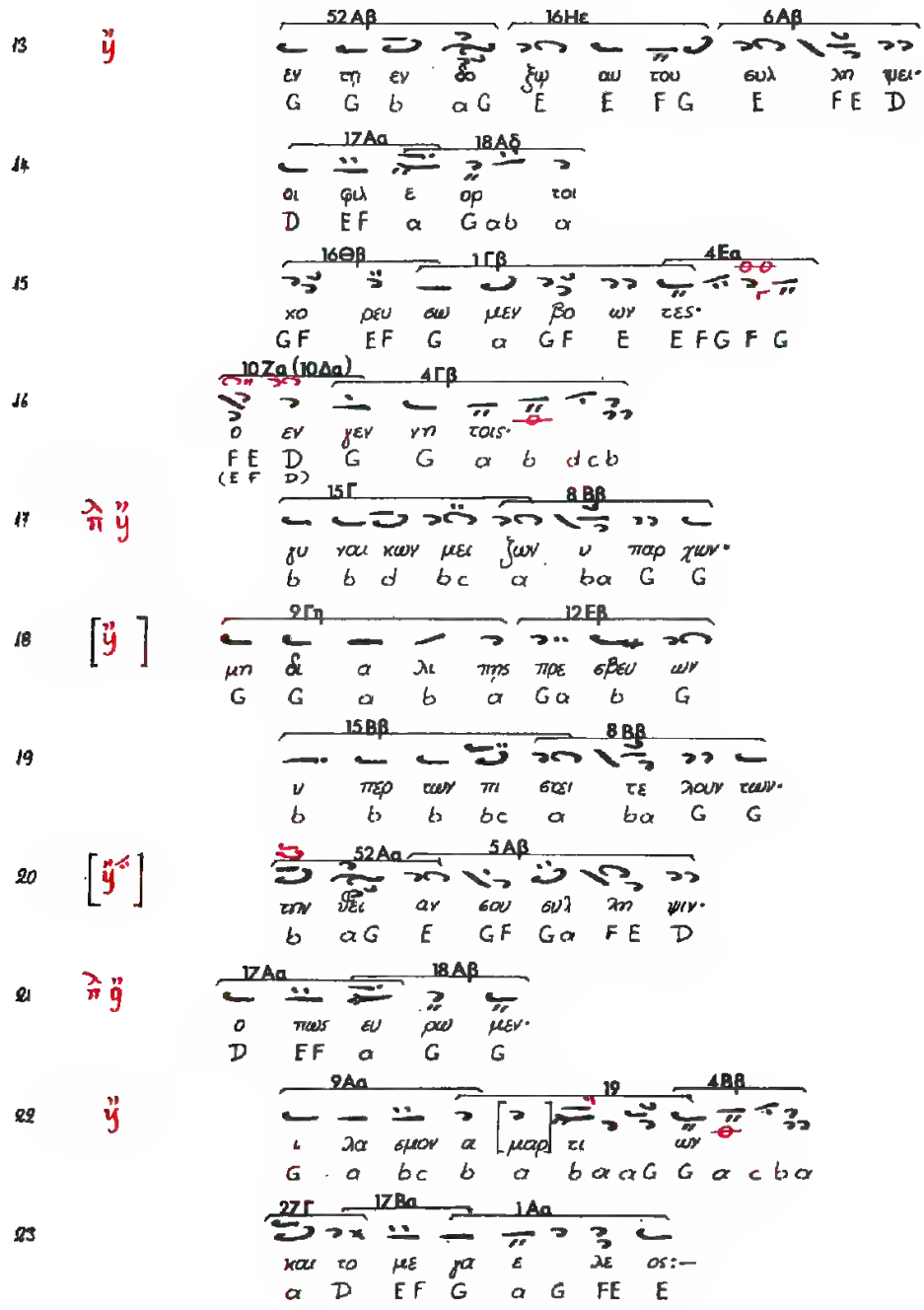


M.M.B. Tr. I, Sept. No 88
Sinai 1230, 22r

Βυζαντίου

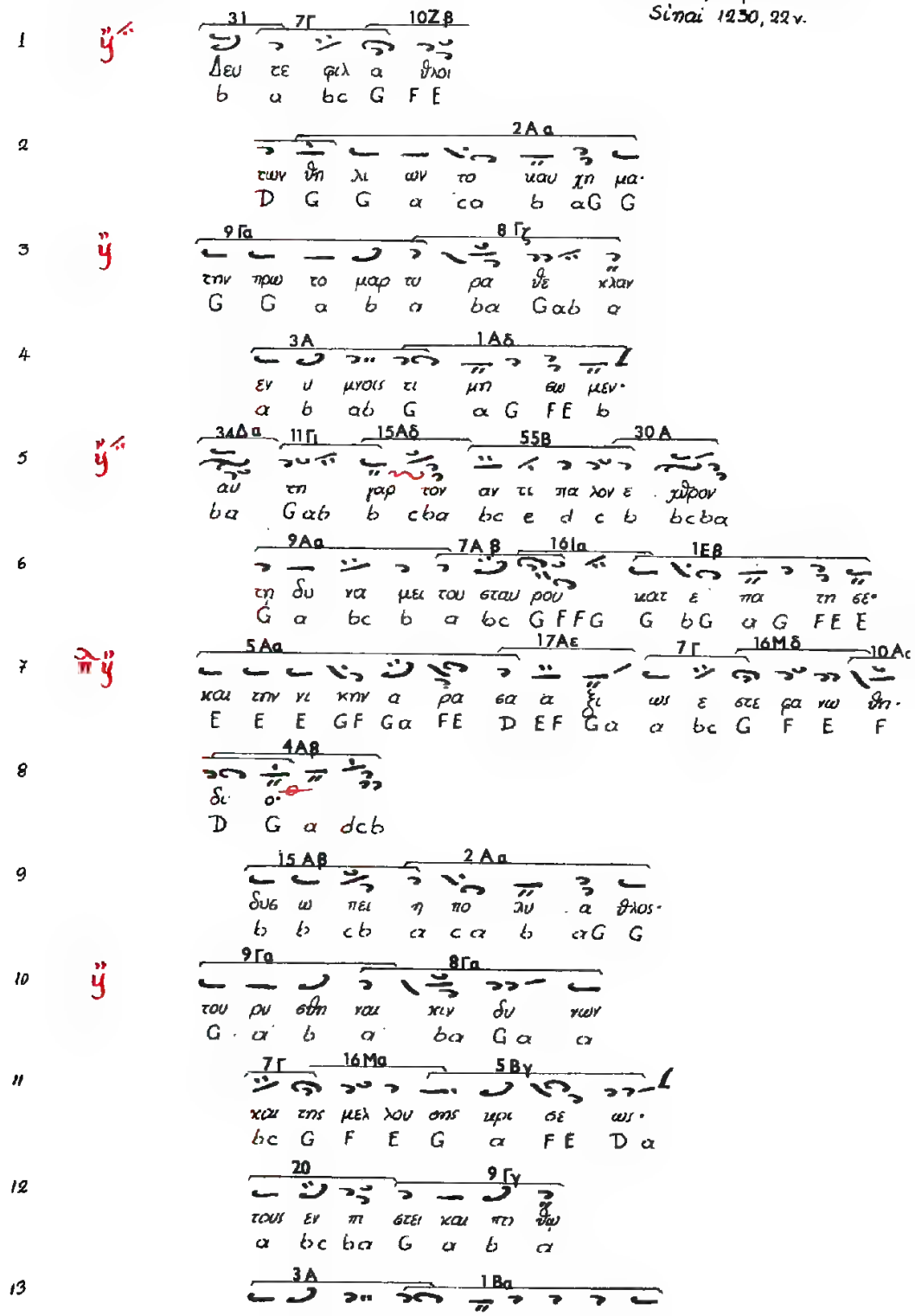


M.M.B. Tr. I, Sept. No 88
continued



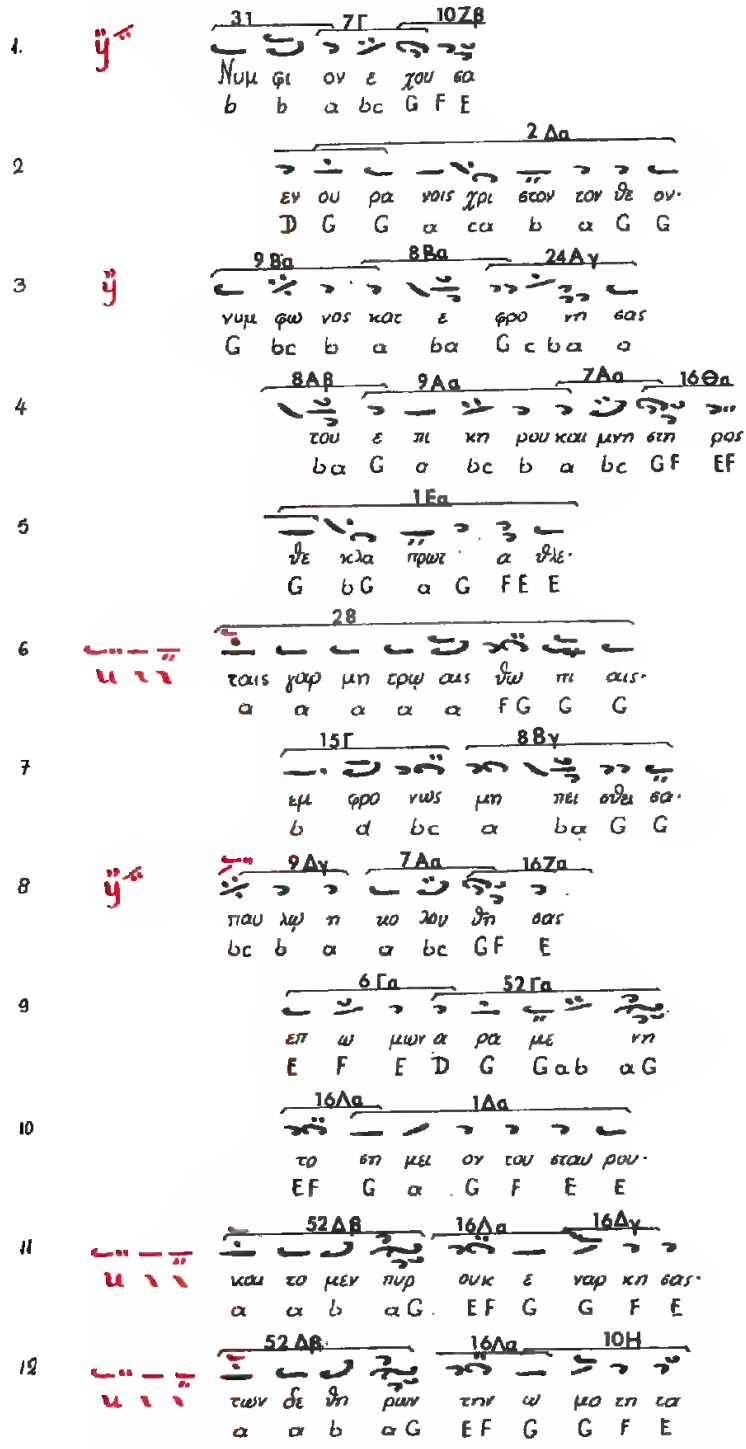
ἀνατολίου

M.M.B. Τε.Ι, Sept. No. 90
Sinai 1230, 22 v.

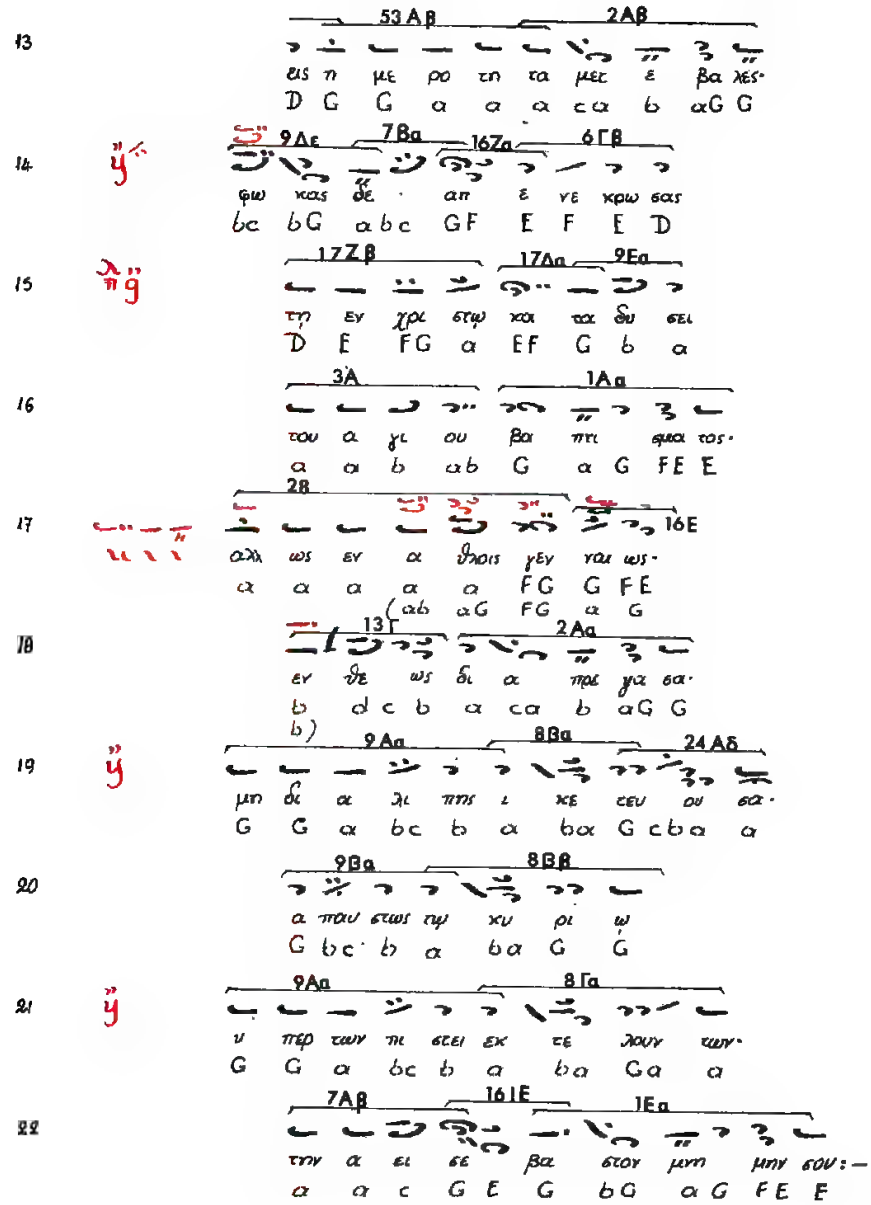


M.M.B. Tr. 1, Sapt. No 91
Sinai 1230, 22v.

κασίας μοναχῆς

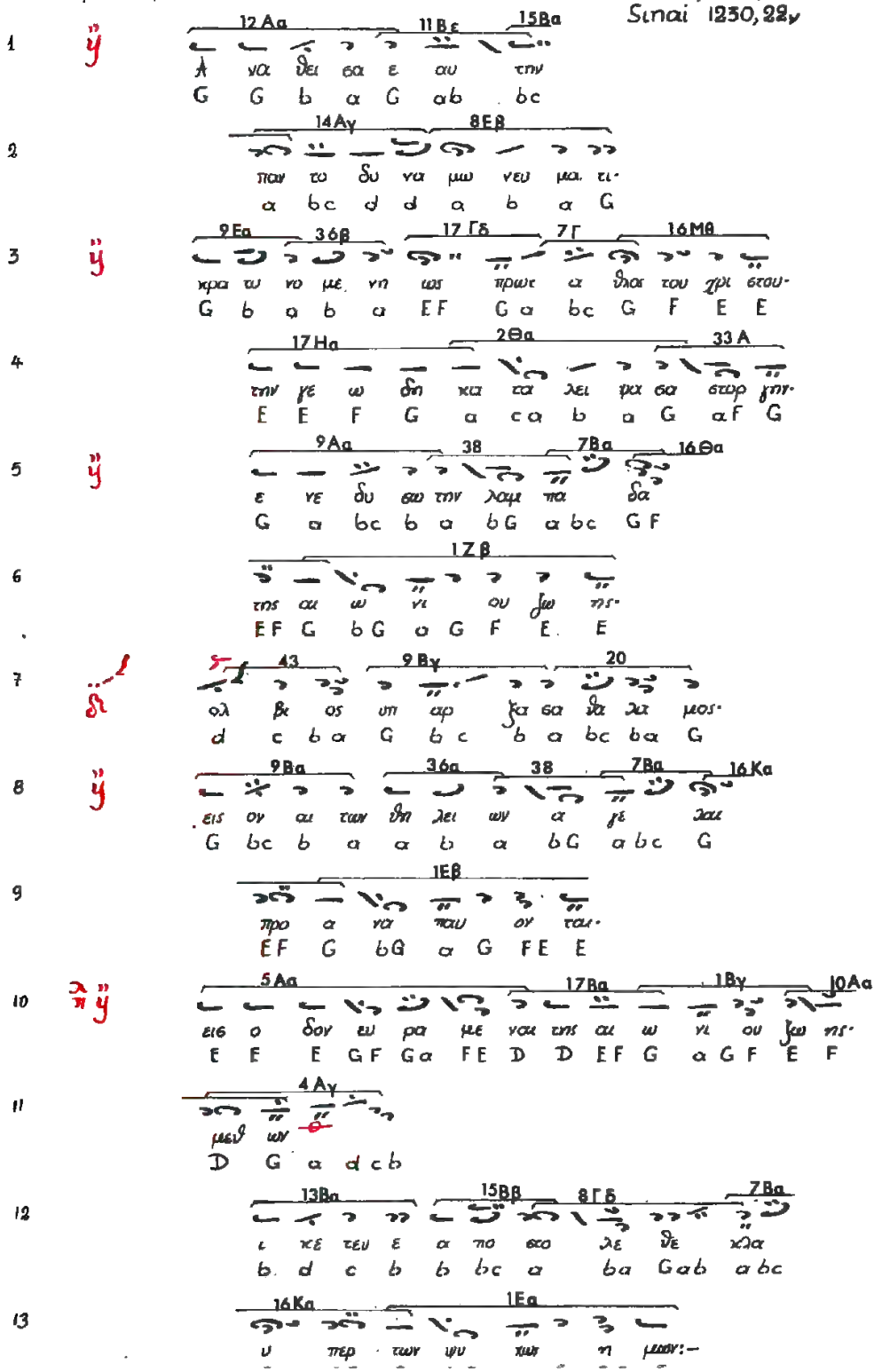


M.M.B. Tr. I, Sept. No 91
contenued



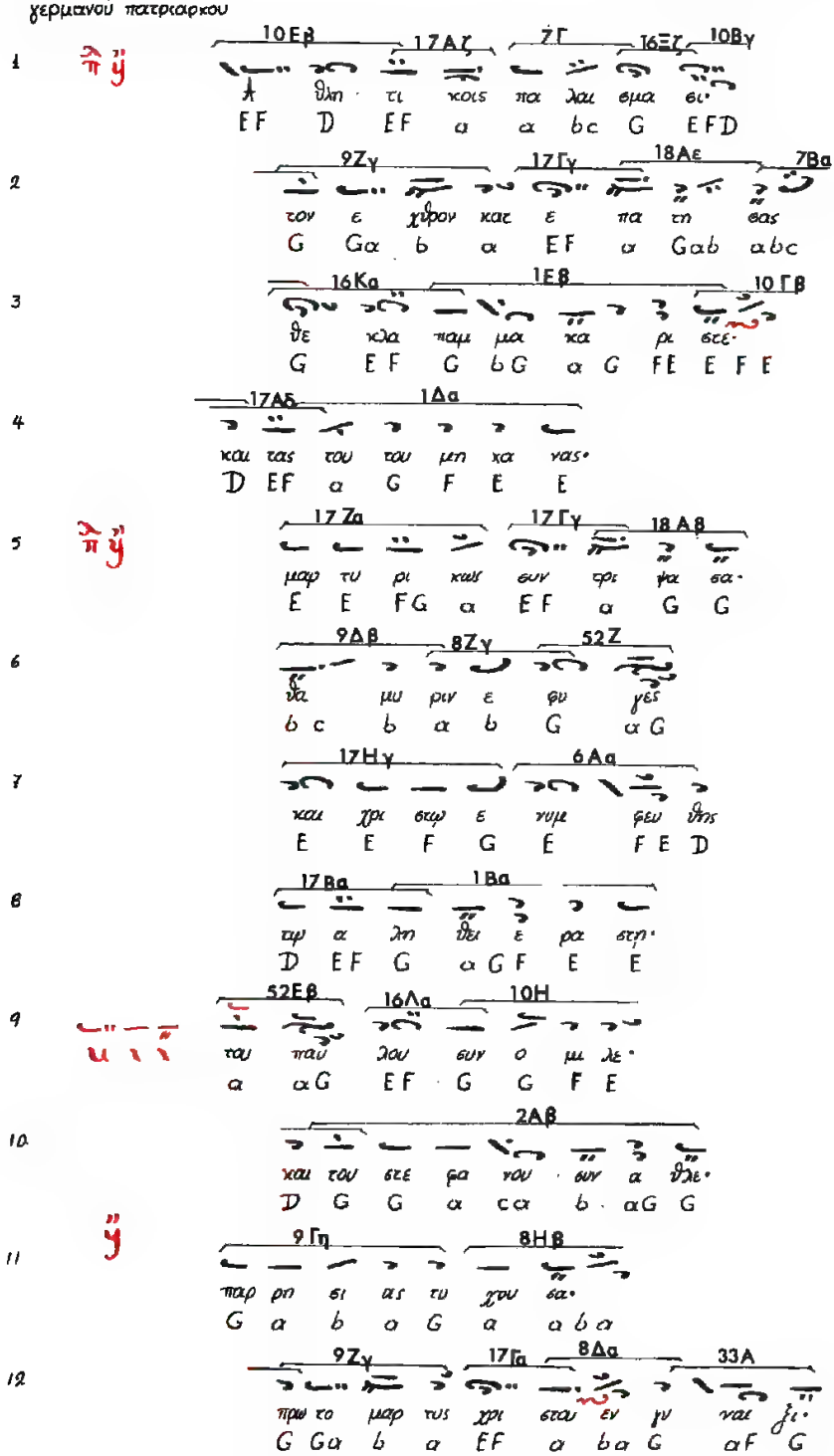
κυπριανοῦ μοναχοῦ

M.M.B. Tr. 1, Sept. No 92
Sinai 1230, 22v

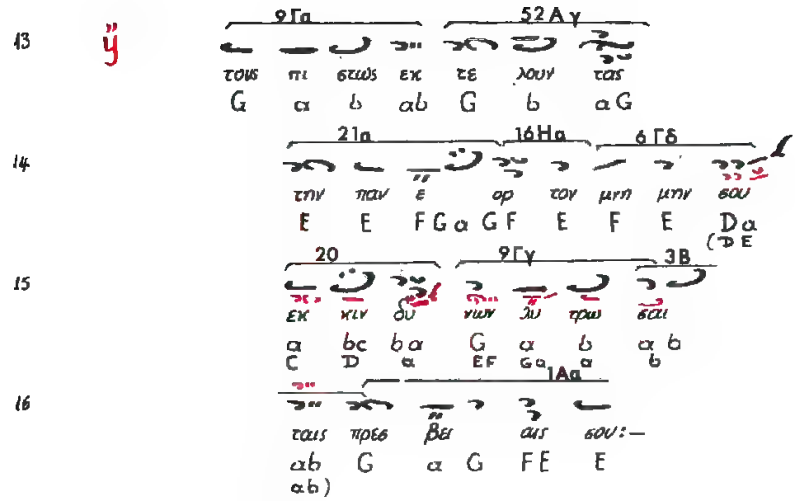


M.M.B. Tc. 1, Sept. No 95
Sinai 1250, 23 v.

χερμανοῦ πατριάρκου

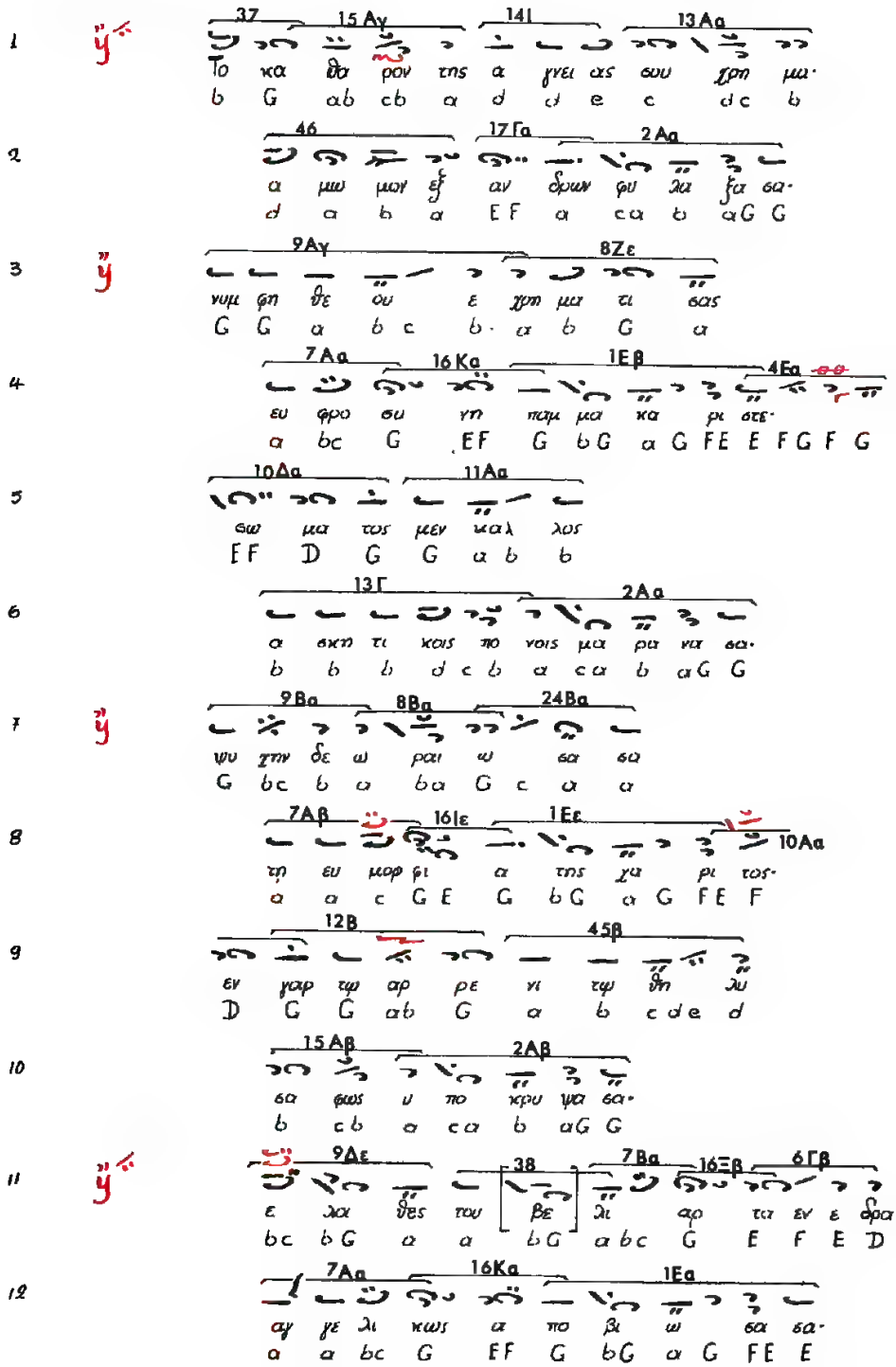


M.M.B. Tr. I, Sept. No. 95
continued

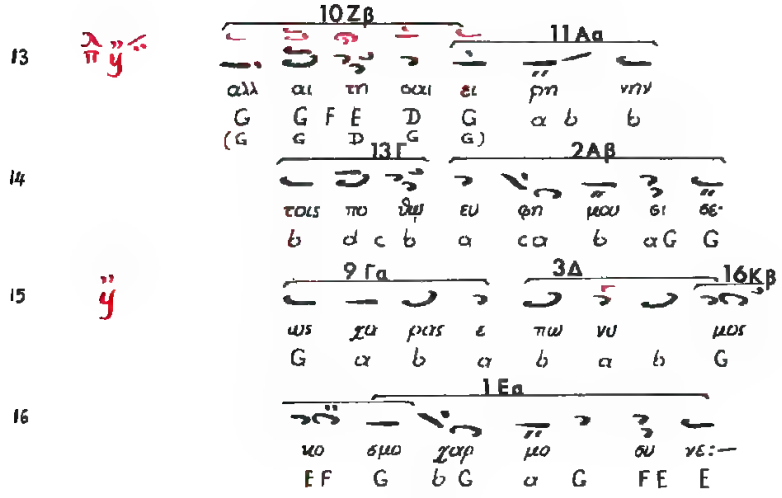


M.M.B. Tr. I, Sept. No 97
Sinai 1230, 23v.

τοῦ αὐτοῦ (i.e. ἀνατολίου)

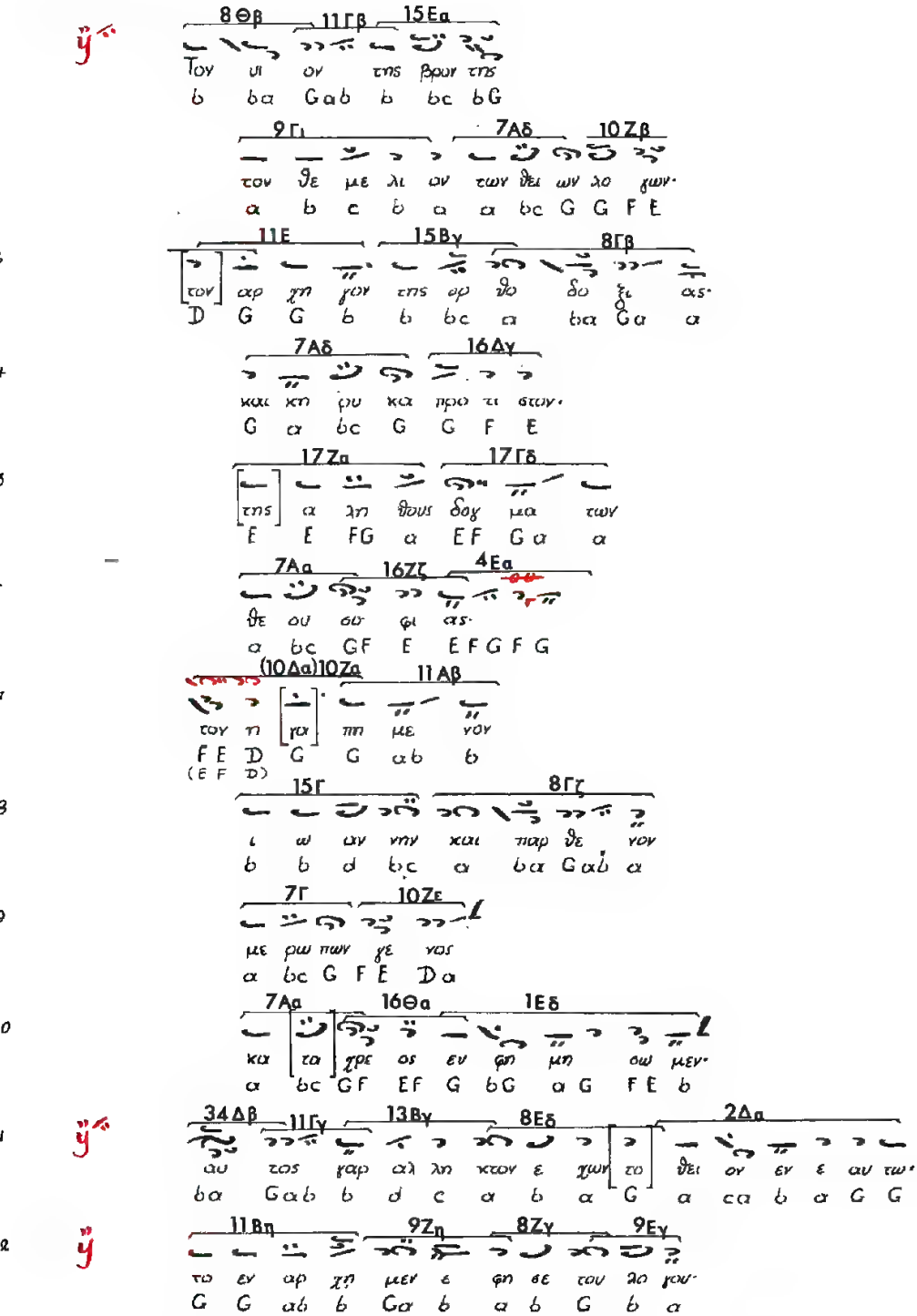


M.M.B. Tr.I, Sept. No 97
continued

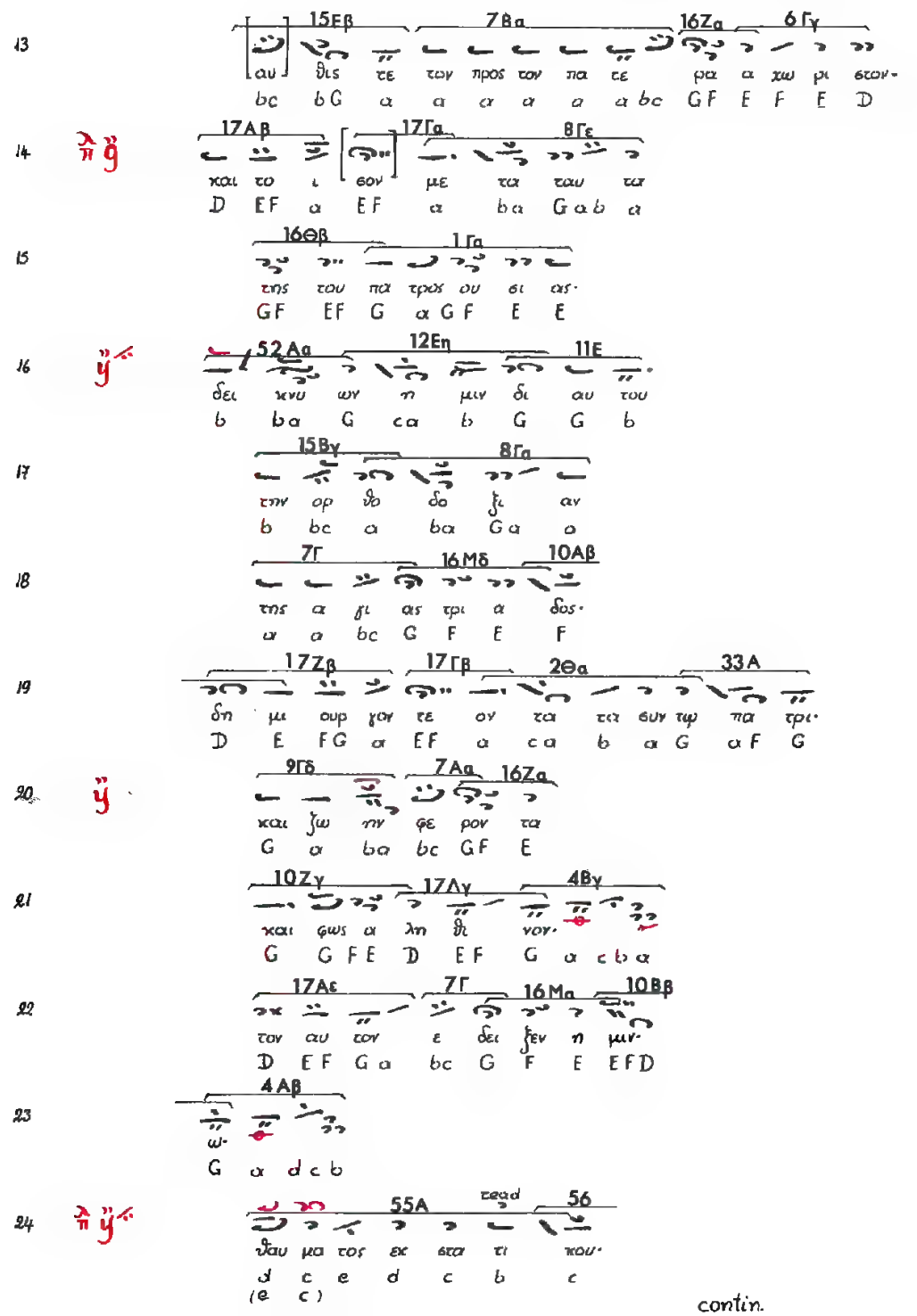


M.M.B. Tr.I, Sept.No 102
Sinai 1230,24v

ἰωάννου μογαχου

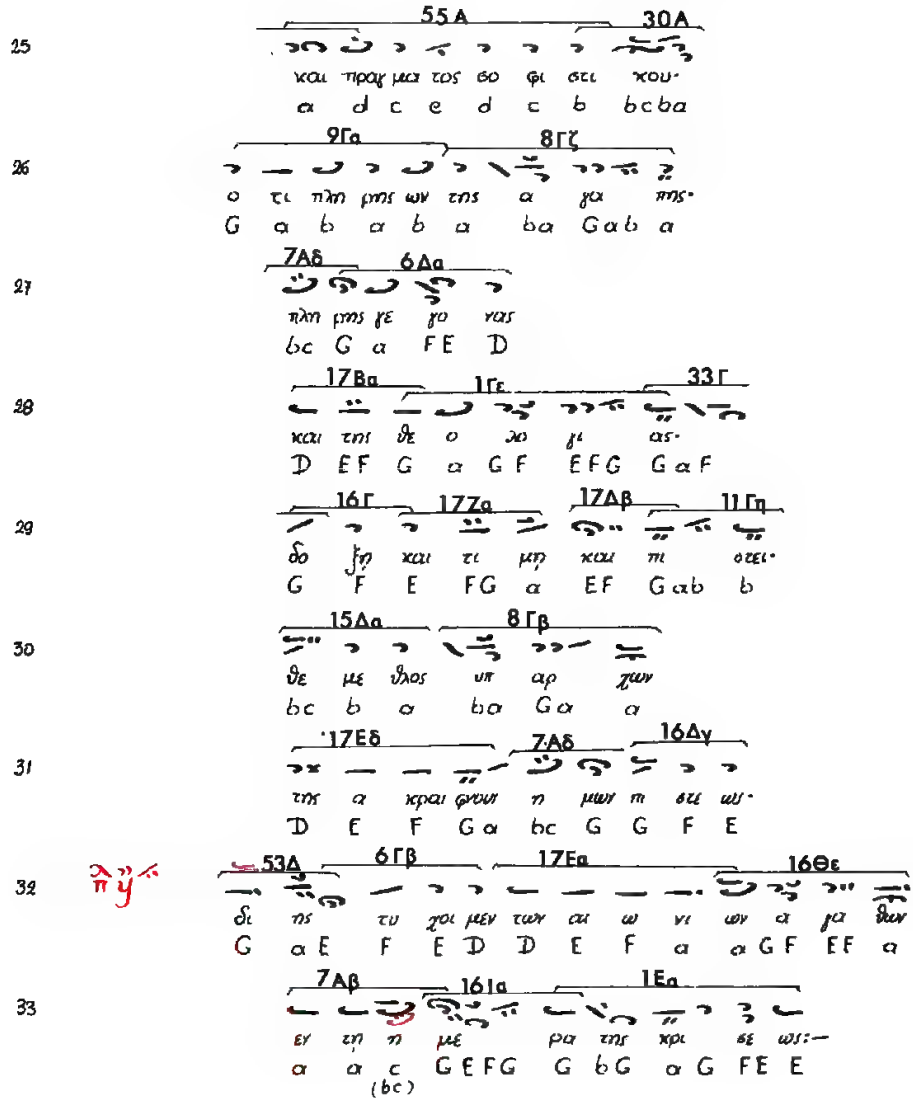


M.M.B. Tr. 1, Sept. No 102
continued



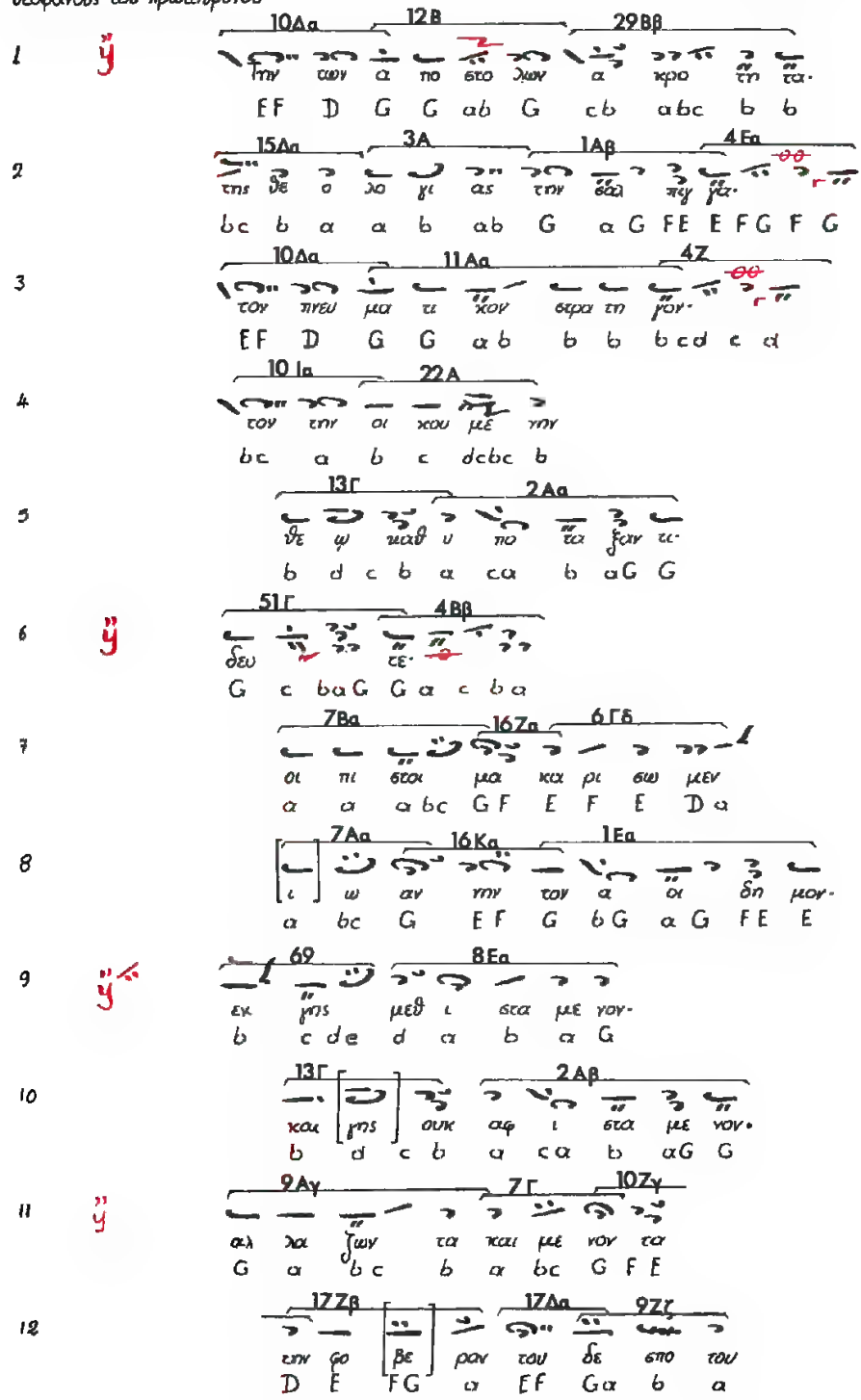
contin.

M. M. B. Tr. I, Sept. No 102
continued

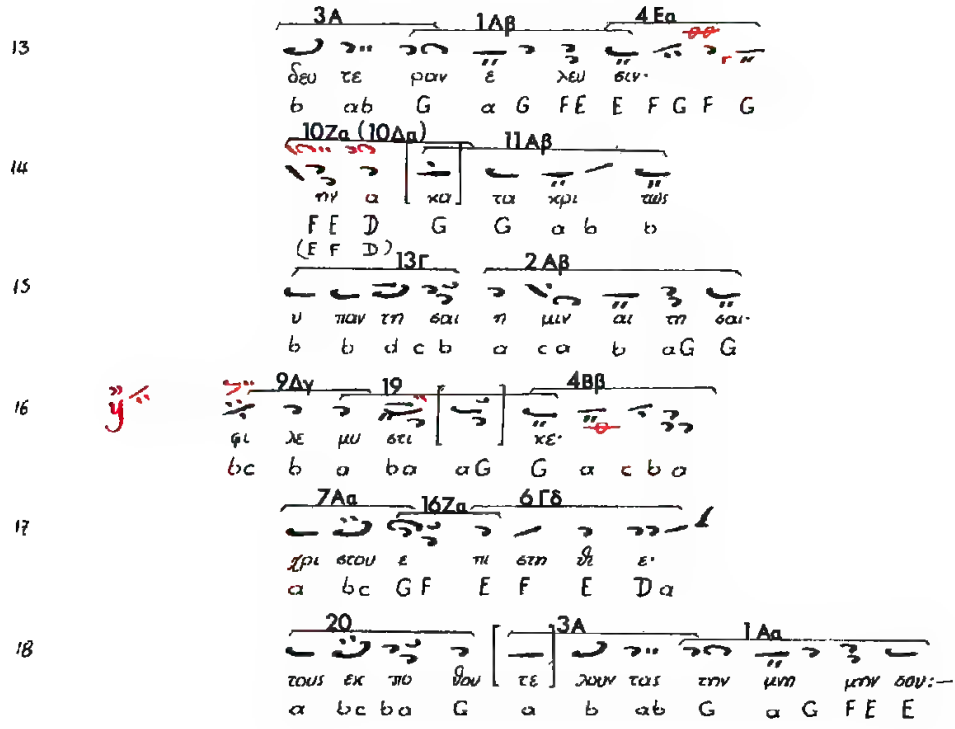


M.M.B. Tz. I, Sept. No 105
Sinai 1250, 25 c.

Θεοφάνους τοῦ πρωτοψάλτου

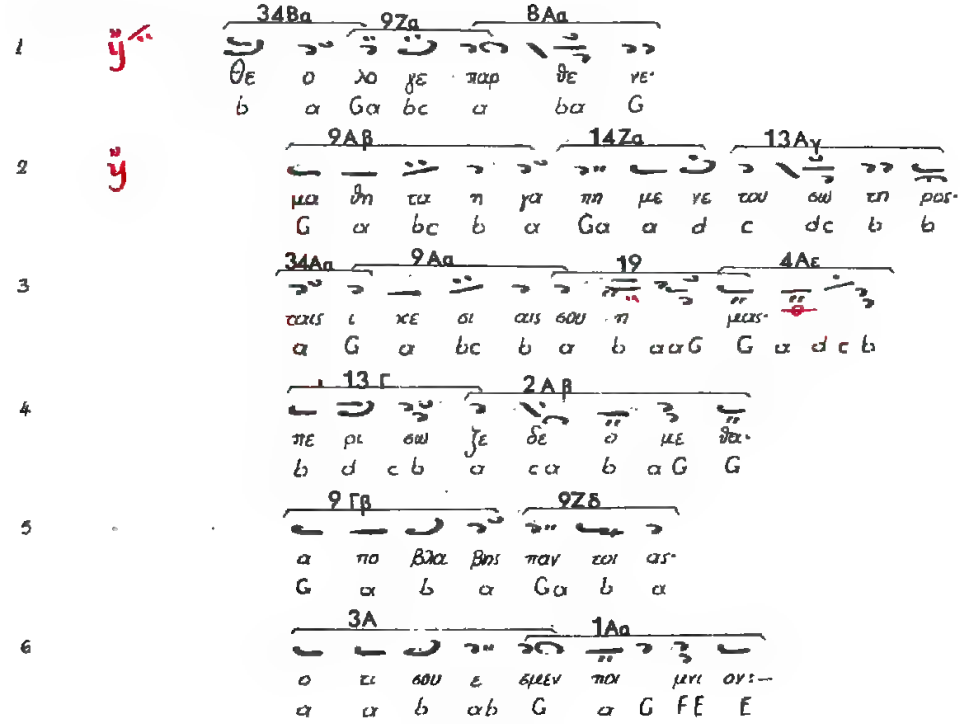


M.M.B. Tr. I, Sept. No 103
continued



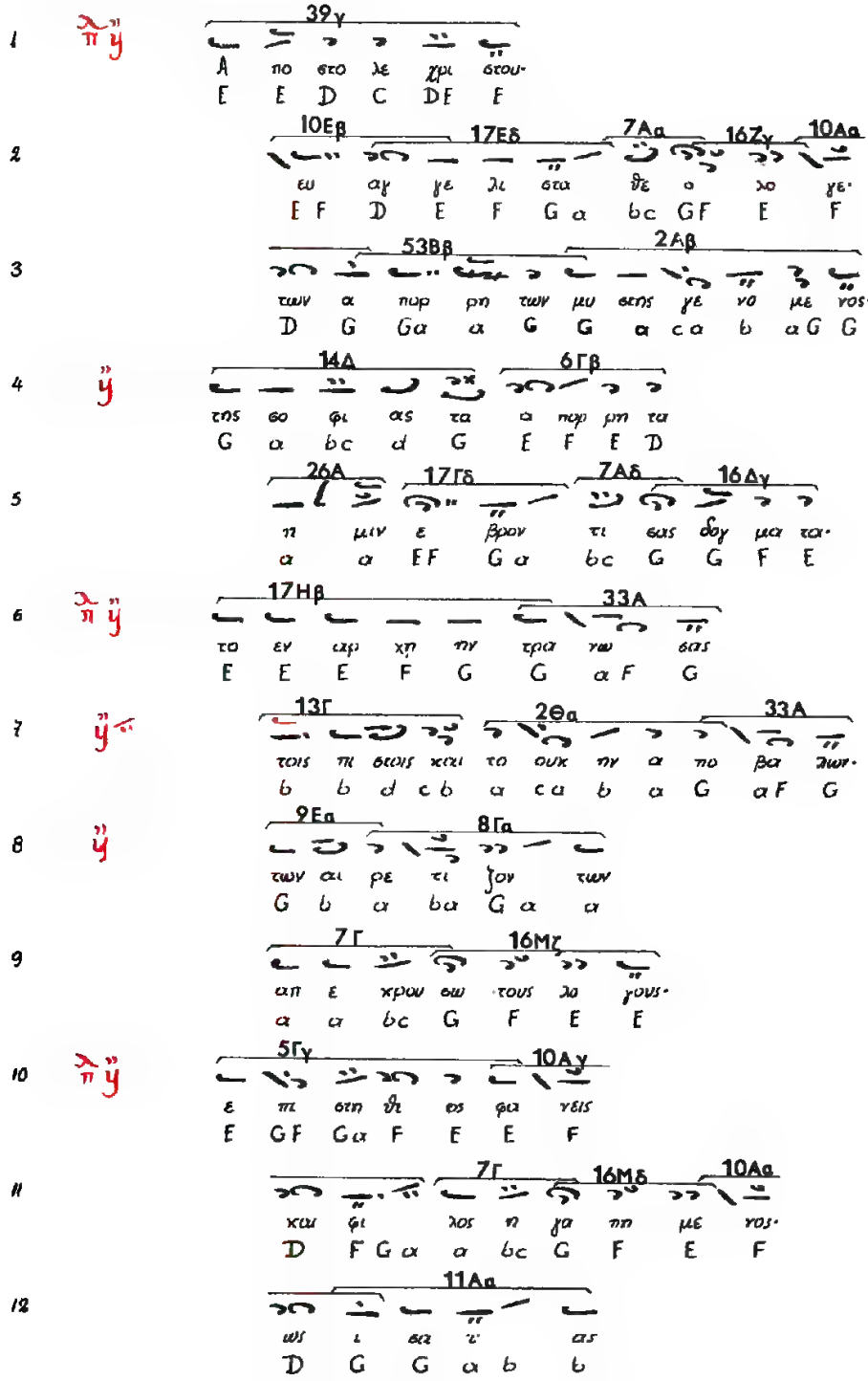
M.M.B. Tc. I, Sept. No 104
Sinai 1250, 25 v.

τοῦ αὐτοῦ (i.e. Θεοφάνους τοῦ πρωτοθρόνου)

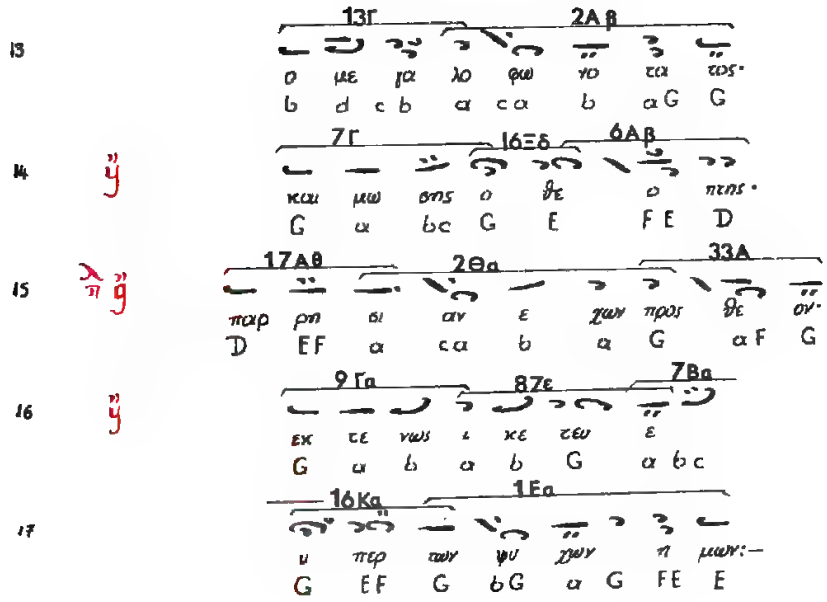


M. M. B. Tr. I, Sept. No. 106
Sinai 1250, 25 v.

Θεοφάνους τοῦ πρωτοθρόνου.

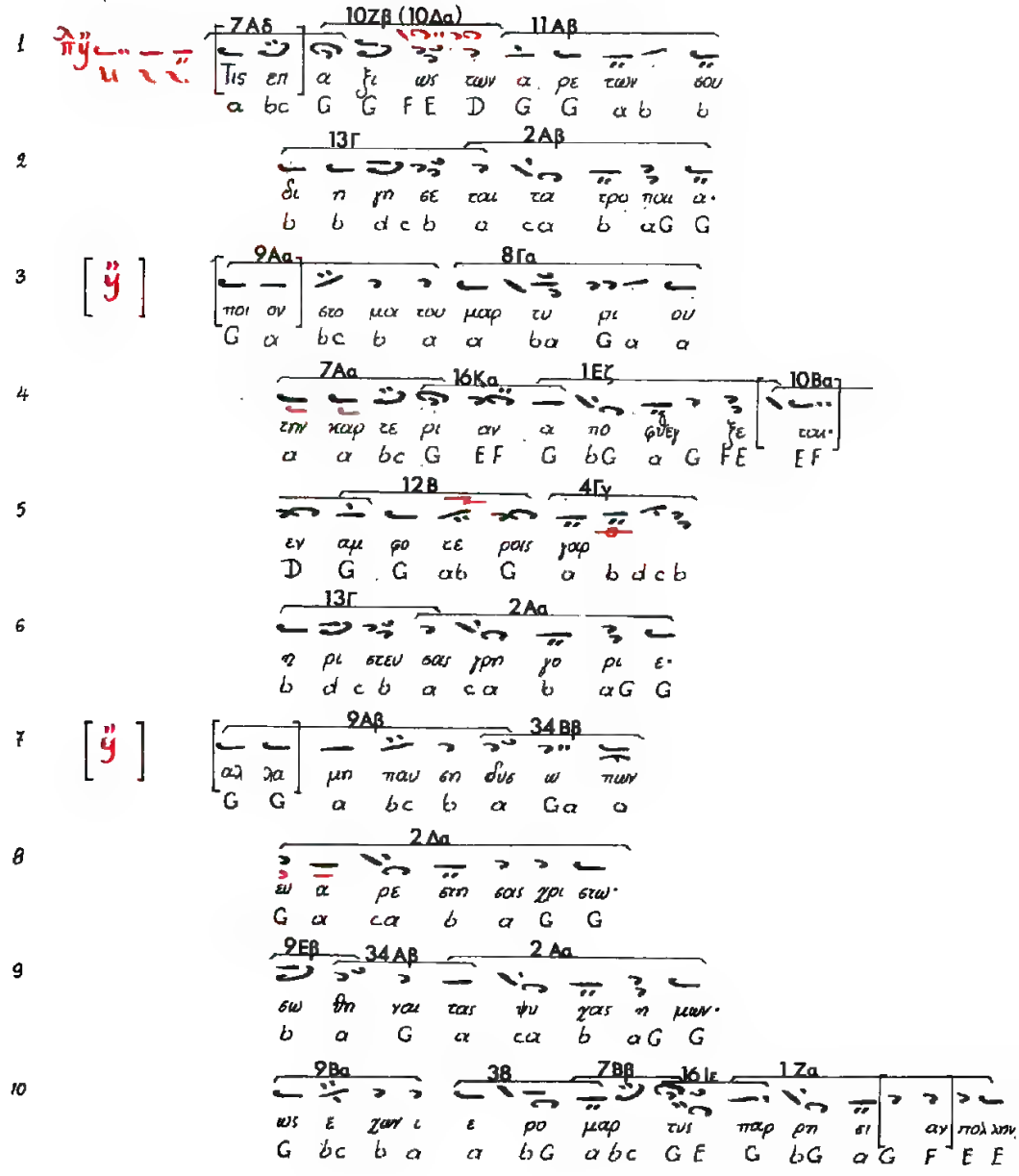


M.M.B. Tc.1, Sept. No.106
continued



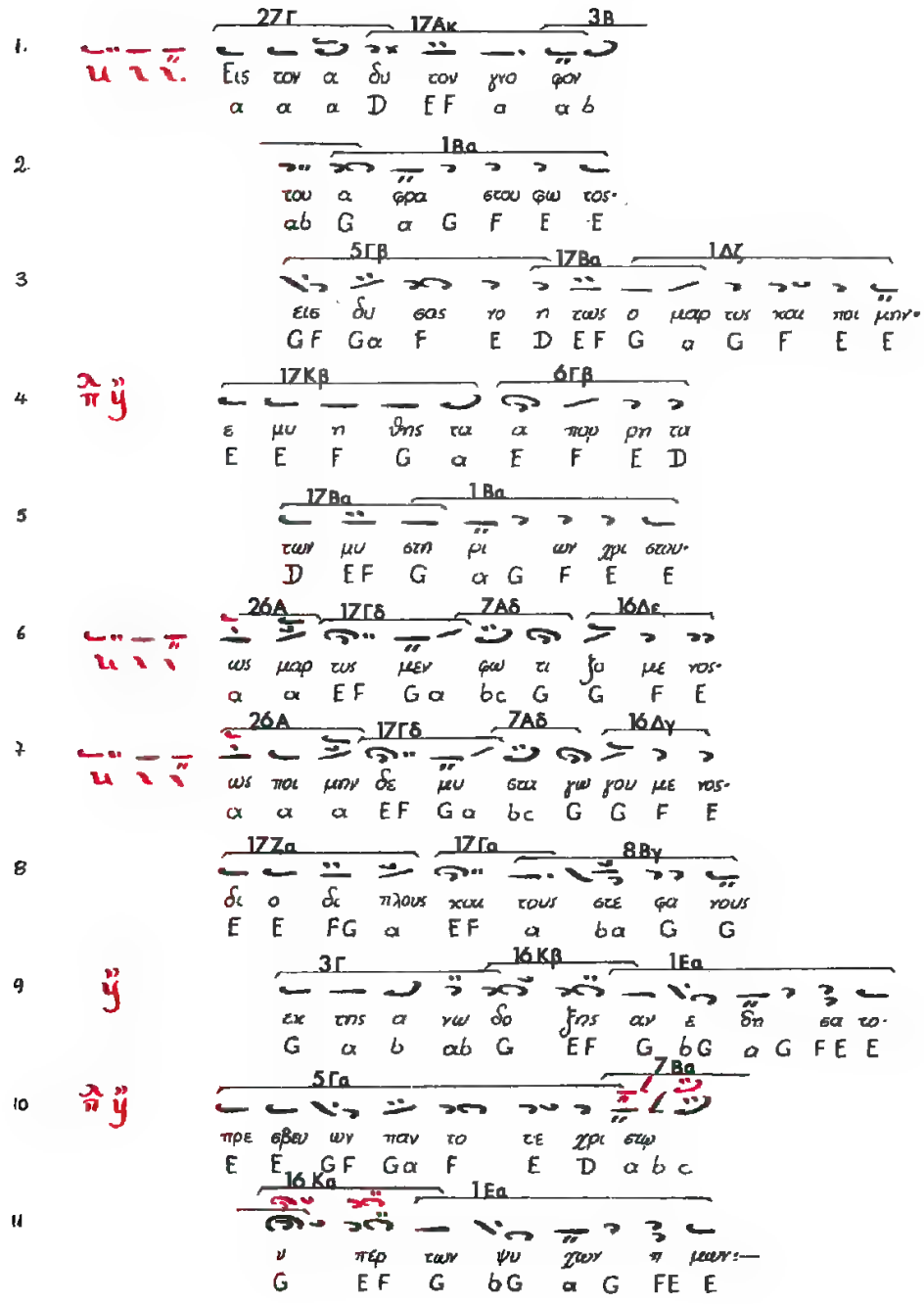
M.M.B. Tr. I, Sept. No 110
Sinai 1250, 26 c.

ἀνδρέου κρήτης



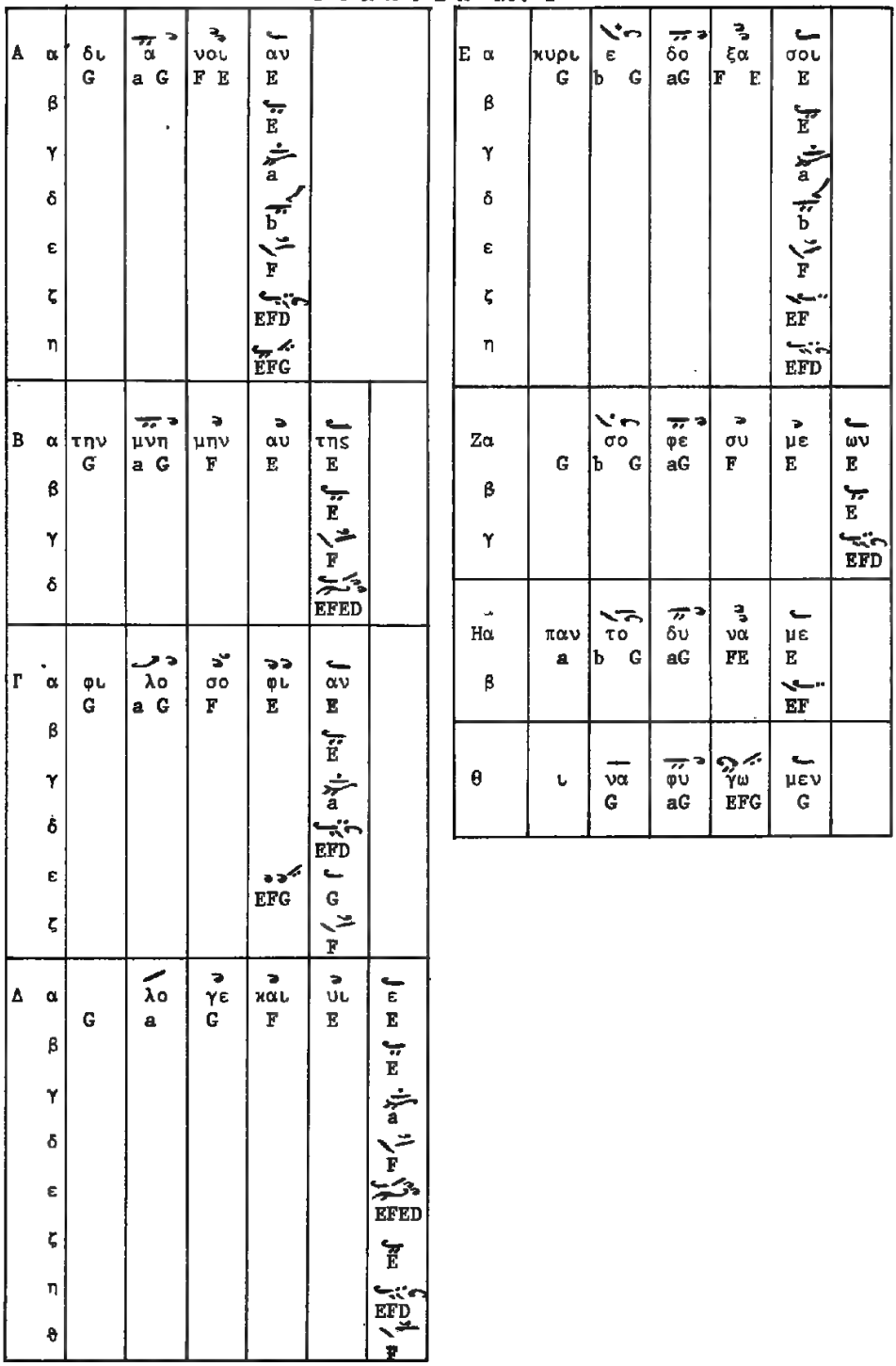
M.M.B. Tr. I, Sept. No 111
Sinai 1230, 26v.

ἀνδρέου τυφλοῦ



TABLES OF THE FORMULAS WITH THEIR OCCURRENCES

F O R M U L A No. 1



Α΄α΄ 11,7. 11,14. 12,5. 13,3. 21,18. 22,11. 23,11. 24,11. 27,11.28,12.
33,5. 33,17. 38,2. 38,11. 44,4. 51,10. 51,12. 51,16. 56,5. 56,13.
56,23. 57,8. 64,13. 65,13.69,17. 83,6. 84,9. 84,22. 84,26. 88,23.
91,16. 95,16. 103,18. 104,6.
β΄ 3,11. 13,6. 33,10. 49,7. 64,11. 65,9. 66,8. 103,2. 103,13. 24,13.
γ΄ 36,3. 37,3. 49,9. 65,5. 88,4.
δ΄ 37,6. 90,4.
ε΄ 21,9. 68,9. 84,19.
ζ΄ 29,13. 50,2.
η΄ 56,19.

Β΄α΄ 90,13. 95,8. 111,2. 111,5.
β΄ 34,3. 38,6. 48,10.
γ΄ 92,10.
δ΄ 21,7

Γ΄α΄ 14.2. 17,11. 29,17. 49,17. 54,4. 69,7. 79,8. 81,18.102,15.
β΄ 54,23. 67,5. 88,15.
γ΄ 88,7. 88,10.
δ΄ 34,11.
ε΄ 102,28.
ζ΄ 36,7.

Δ΄α΄ 9,2. 23,7. 67,3. 91,10. 95,4.
β΄ 12,3. 24,9. 78,6.
γ΄ 23,4. 33,3. 66,5.
δ΄ 16,3.
ε΄ 79,20.
ζ΄ 51,2. 111,3.
η΄ 12,6.
θ΄ 84,14.

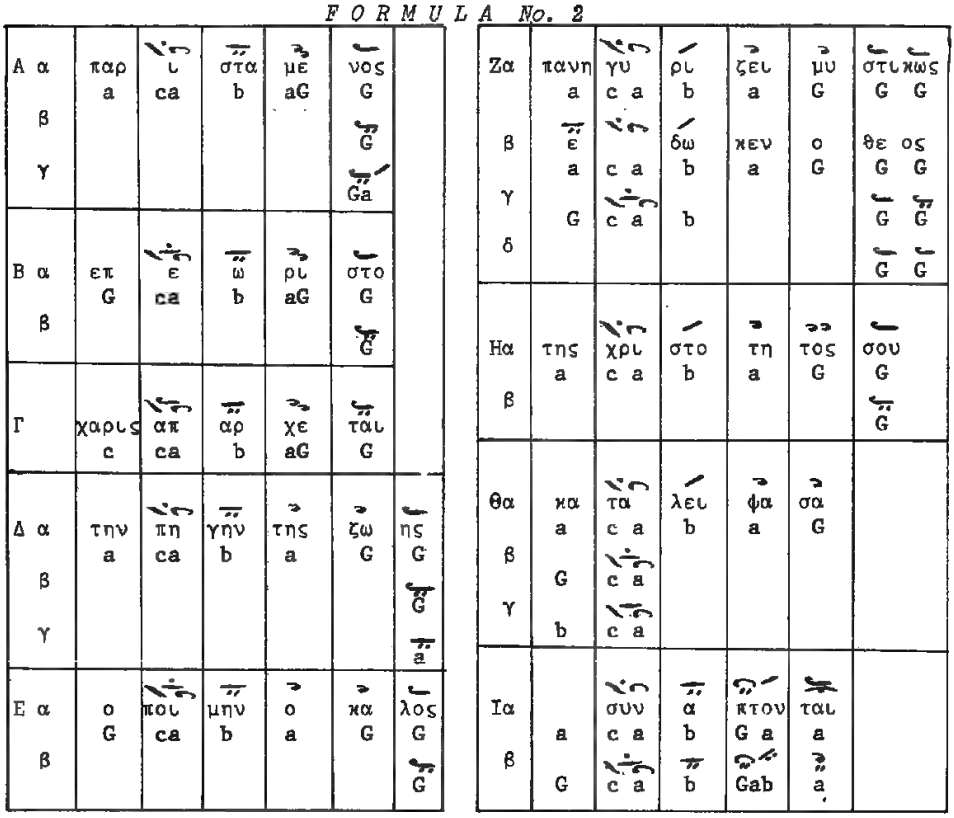
Ε΄α΄ 3,15. 4,5. 4,12. 9,9. 12,12. 13,11. 16,10. 17,4. 17,9. 18,9. 18,14.
21,3. 24,6. 24,21.34,6. 34,16. 35,7. 35,20. 36,11. 37,17. 44,19.
48,13. 54,29. 55,15. 66,13. 68,6. 68,18. 69,5. 72,18. 78,16. 79,18.
81,6. 91,5. 91,22. 92,13. 97,12. 97,16. 102,33. 103,8. 106,17. 111,9
111,11.
β΄ 3,3. 12,8. 16,6. 72,9. 90,6, 92,9. 95,3. 97,4.
γ΄ 49,5. 68,13. 83,2.
δ΄ 54,11. 79,9. 102,10.
ε΄ 3,5. 29,8. 66,2. 84,13. 97,8.
ζ΄ 110,4.
η΄ 3,8. 17,2.

Ζ΄α΄14,12. 24,16. 35,12. 44,11. 55,7. 110,10.
β΄ 11,3. 18,5. 33,14. 92,6.
γ΄ 72,3

Η΄α΄ 50,9. 79,22.
β΄ 35,1.

θ΄ 49,14.

F O R M U L A No. 2



Α΄α΄ 12,9.14,4.16,5.18,7.24,4.28,2.28,7.29,10.54,7.55,13.69,15.72,15.
79,6.90,2.90,9.91,18.97,2.97,6.103,5.110,9.35,3.110,6.
β΄ 3,13.11,9.11,12.18,11.21,5.24,19.27,4.29,15.36,5.38,4.44,7.49,3.
54,2.57,6.65,2.68,14.78,14.79,12.91,13.95,10.97,10.97,14.103,10.
103,15.104,4.106,3.106,13.110,2.
γ΄ 49,15.
Β΄α΄ 16,1.23,8.24,17.29,5.35,16.44,13.69,15.88,12.
β΄ 23,5.68,14.84,23.88,9.
Γ΄ 36,5.
Δ΄α΄ 27,6.50,7.66,7.68,2.78,8.91,2.102,11.110,8.
β΄ 18,8.35,14.35,18.37,12.65,7.68,7.
γ΄ 24,10.
Ε΄α΄ 12,7.
β΄ 34,4.81,8.81,15.
Ζ΄α΄ 28,3.
β΄ 22,5.
γ΄ 56,21.
δ΄ 56,15.
Η΄α΄ 4,8.
β΄ 17,6.
Θ΄α΄ 92,4.34,5.81,12.102,19.106,7.106,15.
β΄ 3,4.72,17.84,8.
γ΄ 38,9.38,10.
Ι΄α΄ 36,10. β΄12,4.

F O R M U L A No. 3

A	μη	τρα a	 πειϛ b	 τη ab	 θε G	οτητι
B	σω	τη	 ρος ab	 των ab	 φυ G	χων
Γ	G	απ a	 ε b	 στηϛ ab	 αφ G	ημων
Δ		επ a	 ω b	 νυ ab	 μος G	
E			 ι b	 α ab	 σιν G	
Z		α a	 ξι b	 ω ab	 σον G	

A′ 3,11.12,5.13,3.13,6.24,11.24,13.28,12.29,12/13.33,17.36,3.37,6.38,2.38,5/6.44,4.49,9.51,10.51,12.51,16.56,5.56,13.56,19.56,23.57,8.64,11.65,5.65,9.65,13.66,8.68,9.83,6.84,9.84,19.84,22.90,4.90,13.91,16.103,2.103,13.103,18.104,6.

B′ 11,13/14.48,10.95,15/16.111,1/2

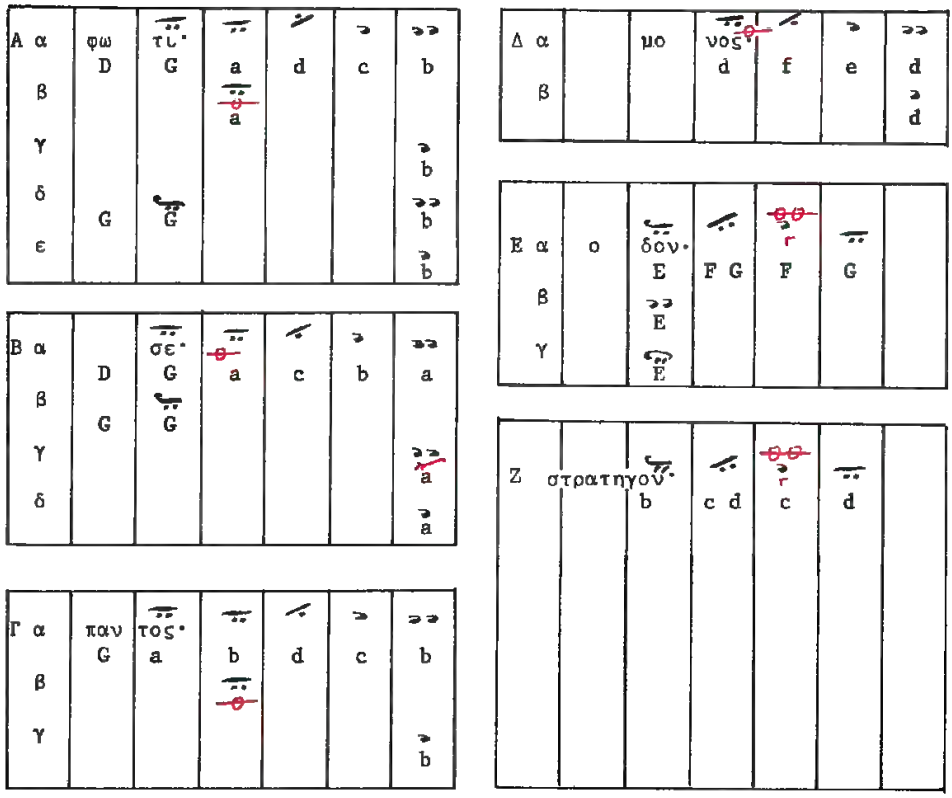
Γ′ 12,8.111,9.

Δ′ 97,15.

E′ 16,6.21,3.

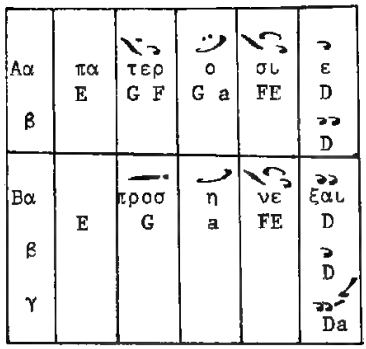
Z′ 68,18.

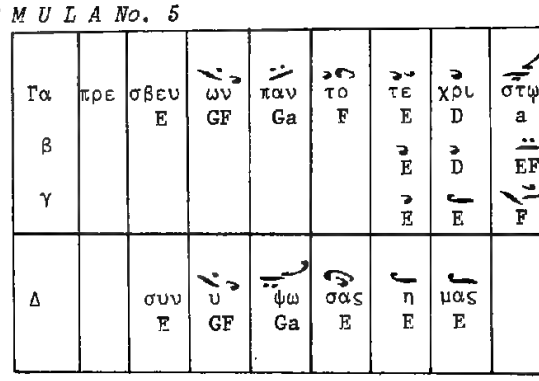
F O R M U L A No. 4



Α α 14,7.
β 16,4.21,10.29,9.36,8.66,3.68,10.90,8.102, 23.
γ 84,20.92,11.
δ 44,8.
ε 104,3.
Β α 50,3.
β 54,8.54,16.56,8.56,16.64,8.68,8.88,22.103,6.103,16.
γ 81,9.102,21.
δ 12,10.13,9.68,17.79,17.
Γ α 18,10.
β 11,11.22,7.35,2.49,2.65,6.72,10.88,16.
γ 110,5.
Δ α 66,9.
β 55,10.
Ε α 3,3.18,5.24,9.49,1.72,9.78,2.78,6.88,15.97,4.102,6.103,2.103,13.
β 17,5.28,1.35,13.51,13.72,14.
γ 4,6.11,10.
Ζ 103,3.

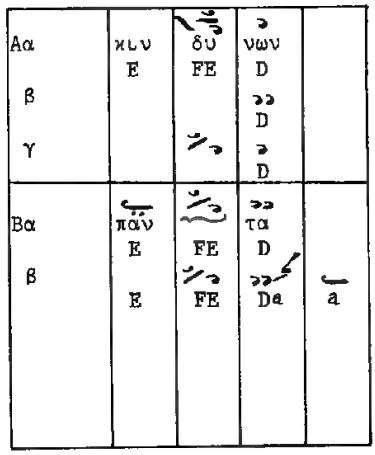
F O R M U L A No. 5

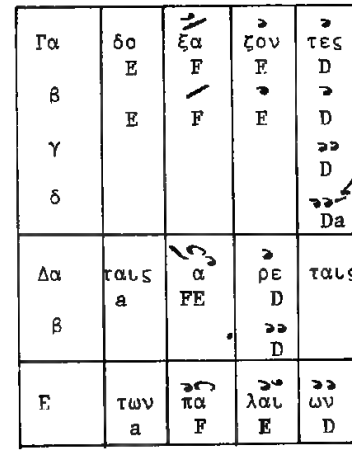




Αα 16,7.21,8.22,2.23,2.38,7.44,17.48,12.51,11.56,12.64,12.65,4.68,4.
69,3.78,5.78,10.84,17.90,7.92,10.
β 21,1.23,9.69,1.72,12.83,4.84,3.88,20.
Βα 18,3.55,4.72,12.
β 48,12.56,12.64,12.68,4.69,3.
γ 90,11.
.α 111,10.
β 111,3.
γ 106,10.
Δ 68,15.

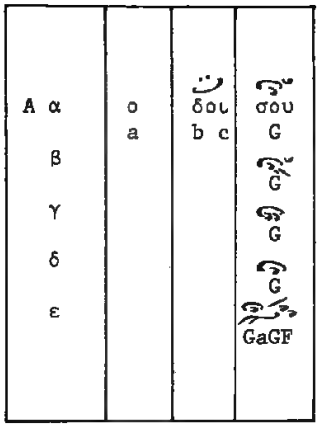
F O R M U L A No. 6

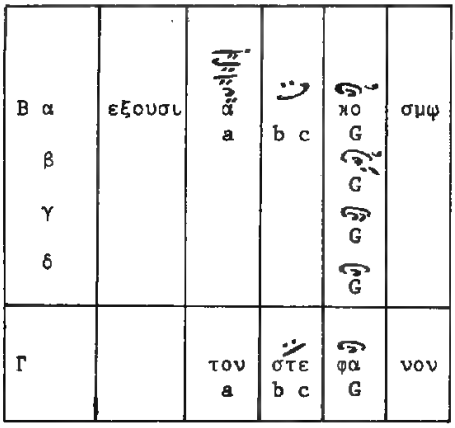




Αα 21,17.28,6.48,4.50,2.95,7.
β 33,5.33,6.34,10.36,1.37,2.49,10.49,11.64,4.64,9.79,3.88,13.106,14.
γ 9,7.21,13.28,11.66,2.88,6.
Βα 49,8.69,10.69,12. β) 72,8
Γα 50,5.48,10.50,8.64,10.67,6.84,11.91,9.
β 14,5.34,9.37,15.37,16.49,17.54,9.56,9.56,17.72,5.84,24.91,14.97,11.
102,32.106,4.111,4.
γ 11,6.17,8.27,10.102,13. δ) 95,14.103,7.103,17.
Δα 79,5.79,13.102,27. β) 84,6.
Ε 49,13.

F O R M U L A No. 7





Α'α' 3,3.3,15.4,9.9,2.9,9.11,2.11,3.12,12.13,11.14,12.17,2.17,8.18,9.
21,12.21,15.23,6.24,16.28,8.29,7.33,8.34,15.35,12.36,11.44,10.48,13.
54,11.55,7.55,15.56,17.66,11.66,13.68,6.72,3.72,9.72,18.78,16.79,13.
79,18.81,2.81,6.83,2.91,4.91,8.97,4.97,12.102,6.102,10.102,20.103,8.
103,17.106,2.110,4.

β' 3,5.4,4.4,11.17,4.17,9.24,5.33,13.34,6.35,6.37,17.49,4.54,28.66,2.
68,13.90,6.91,22.97,8.102,33

γ' 16,1.18,10.35,8.65,6.

δ' 22,3.48,7.51,6.64,9.66,6.81,14.102,2.102,4.102,27.102,31.106,5.
110,1.111,6.111,7.

ε' 65,1.72,14.88,1.

Β'α' 3,7/8.14,5.16,9/10.18,4.18,13.24,20.27,9/10.44,18/19.48,8.54,9.56,9.
8412/13.91,14.92,5.92,8.92,12/13.95,2/3.97,11.102,13.103,7.106,16/17
111,10/11.

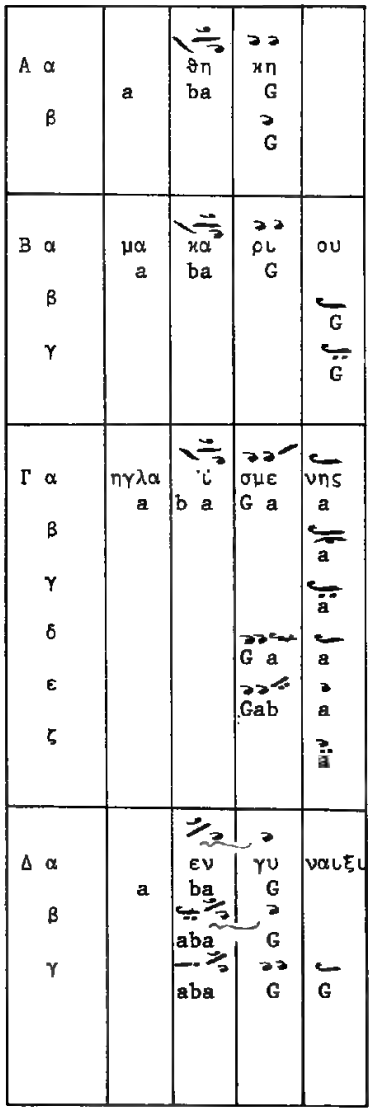
β' 110,10.

γ' 36,4.37,4.

δ' 14,3.22,10/11.35,10.35,13.44,16/17.49,1.68,14.78,1.78,3.79,19.81,7.
81,11.88,8.

Γ' 4,6.9,4.11,10.14,6.18,12.21,17.27,3.28,1.28,5.28,10.29,4.34,8.49,10.
50,8.54,17.54,18.55,2 .55,4.56,6.56,14.67,9.72,13.78,10.78,12.81,10.
81,13.90,1.90,7.90,11.91,1.92,3.95,1.102,9.102,18.102,22.103,11.
106,9.106,11.106,14.

F O R M U L A No. 8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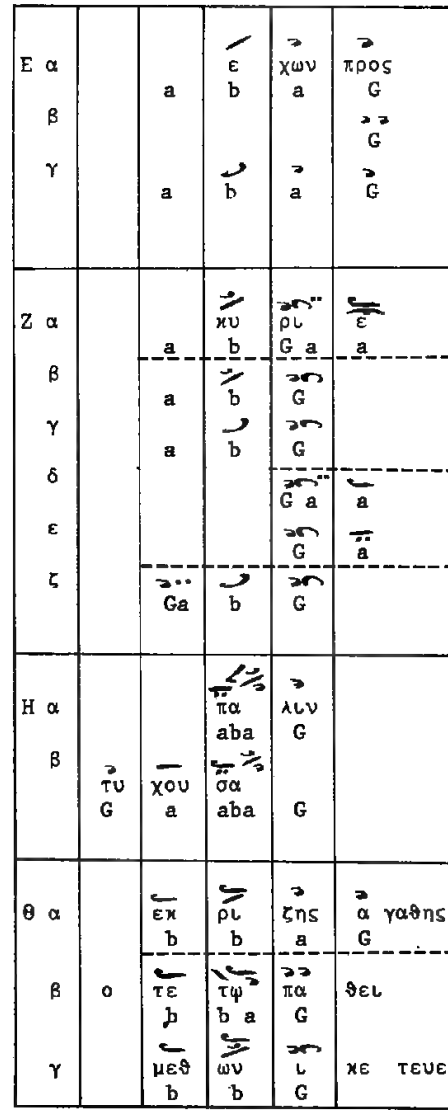
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Α'α' 13,1.104,1.
β' 29,7.29,12.91,4.

Β'α' 14,9.16,2.54,2.81,16.84,16.91,3.91,19.97,7.
β' 3,6.9,3.21,14.22,8.24,2.33,12.44,9.44,15.72,6.72,11.81,4.88,2.88,17.
88,19.91,20.
γ' 3,9.11,5.13,8.14,1024,18.38,8.48,6.54,26.56,11.84,4.84,21.91,7.
111,8.

Γ'α' 29,6.34,14.51,16.54,27.79,7.79,15.90,10.91,21.102,17.106,8.110,3.
β' 34,2.54,25.84,5.102,3.102,30.
γ' 22,9.56,22.
δ' 37,10.
ε' 3,10.17,3.35,5.37,5.102,14.
ζ' 3,14.3,7.13,2.13,5.51,9.90,3.92,12.102,8.102,26.

Δ'α' 95,12.35,9.
β' 22,9.56,22.81,16.
γ' 56,7.

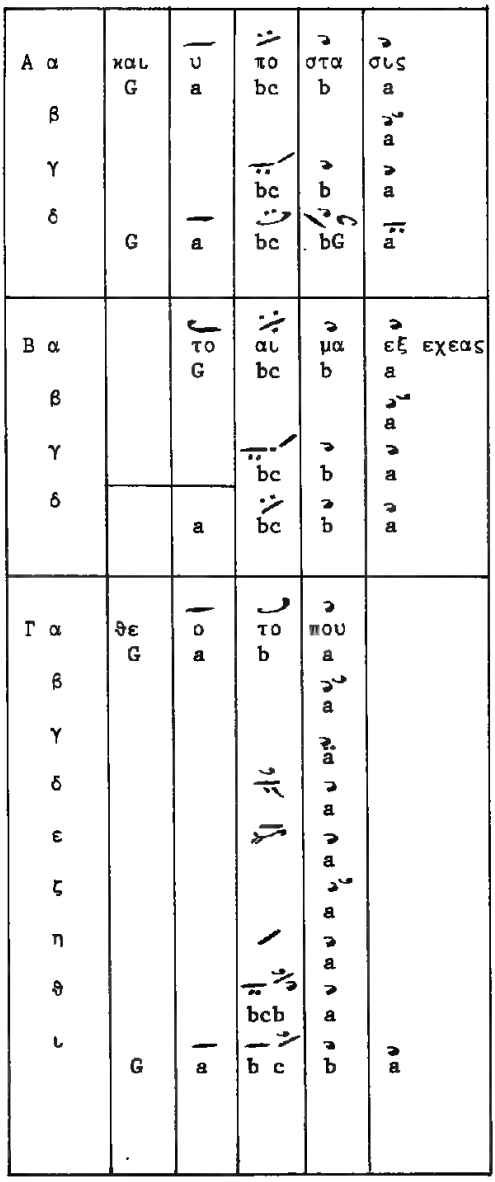
Ε'α' 21,11.44,2/3.103,9.
β' 3,2.92,2.
γ' 102,11.

Ζ'α' 17,1.28,4.68,12.
β' 34,13.
γ' 83,3.95,6.102,12.
δ' 21,6.78,15.
ε' 24,20.84,12.97,3.106.16.
ζ' 38,10.

Η'α' 17,9.
β' 95,11.

Θ'α' 11,1.14,1.54,12.55,1.81,1.
β' 17,1.24,1.102,1.
γ' 12,11.13,10.

F O R M U L A No. 9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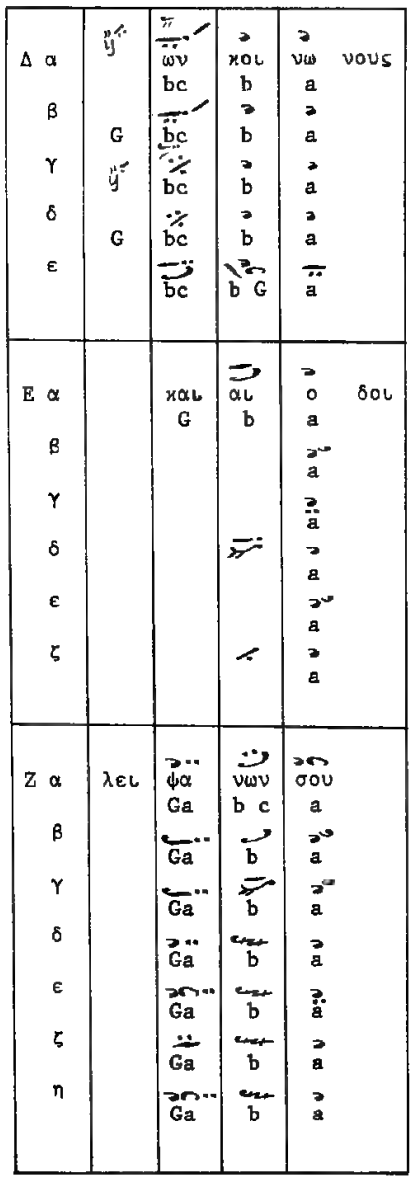
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Α'α' 3,5.3,7.3,14.4,4.12,10.13,9.14,9.16,2.17,9.23,9.29,16.33,13.
36,6.37,10.37,13/14.44,8.49,4.56,12.56,16.68,8.68,17.81,9.81,16.
81,17.88,22.90,6.91,4.91,19.91,21.92,5.104,3.110,3.
β' 17,7.22,10.24,3.65,8.104,2.110,7.
γ' 4,9.11,10.16,6.68,12.78,15.97,3.103,11.
δ' 14,5.27,9.54,3.

Β'α' 21,6.23,6.24,5.28,4.29,6.54,8.54,21.54,26.91,3.91,20.92,8.97,7.
110,10.
β' 55,3.55,6.
γ' 28,8.66,11.92,7.
δ' 27,3.

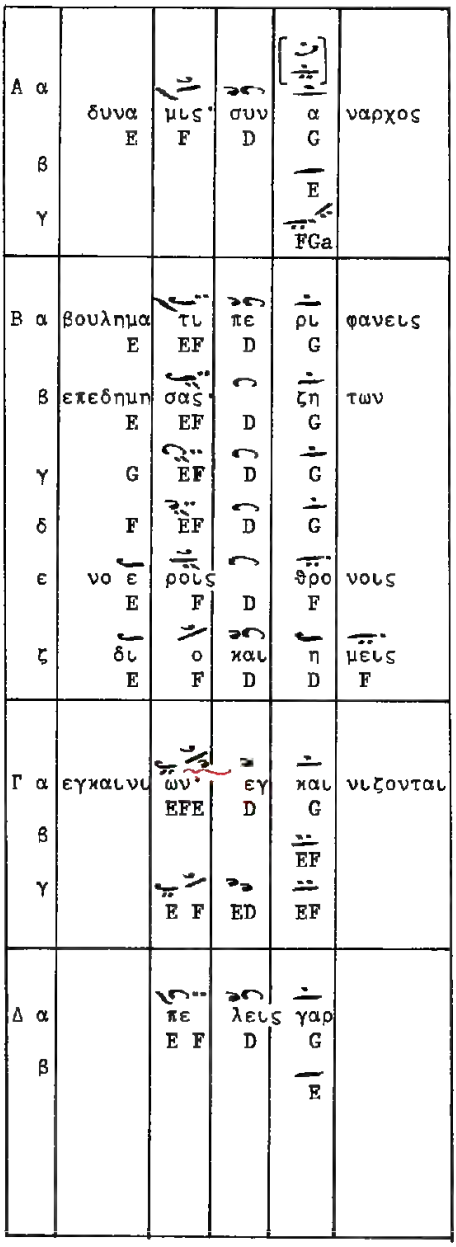
Γ'α' 4,10.9,4.11,2.21,12.21,15.24,13.29,4.29,7.51,9.54,16.54,27.56,8.
79,5.81,1.84,12.84,22.90,3.90,10.95,13.97,15.102,26.106,16.
β' 104,5.
γ' 90,12.95,15.
δ' 24,20.33,7.33,8.79,13.102,20.
ε' 3,10.18,3.18,9.22,6.29,12.29,17.38,5.44,10.
ζ' 50,6.81,5.84,26.
η' 11,13.28,3.55,13.55,14.57,7.66,8.72,7.78,9.88,18.95,11.
θ' 34,5.
ι' 102,2.

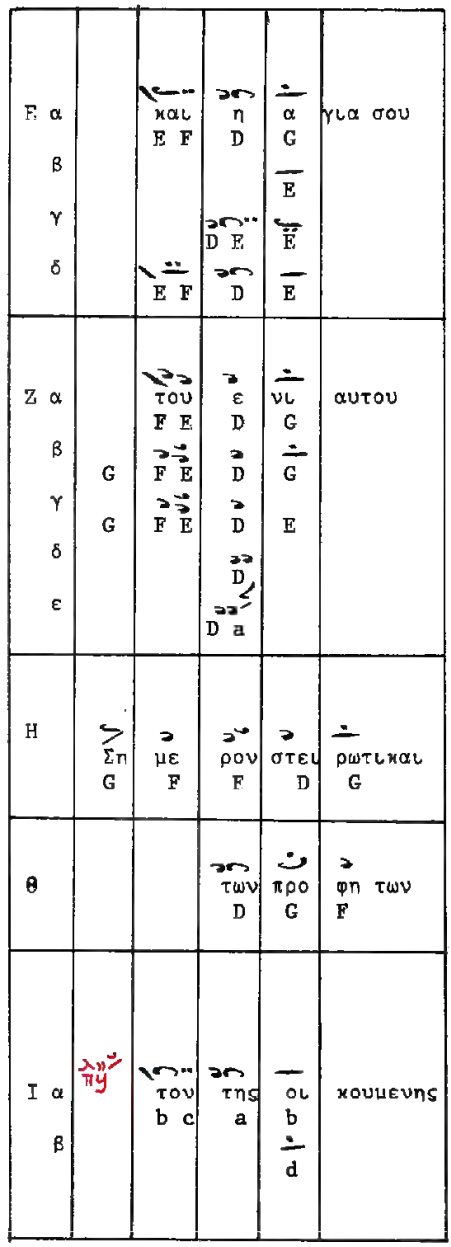
Δ'α' 18,12.
β' 95,6.
γ' 48,7.56,22.68,15.84,16.91,8.103,16.
δ' 65,3.
ε' 14,11.91,14.97,11.

Ε'α' 3,3.13,2.13,5.22,9.34,14.36,2.54,2.54,25. 79,7.79,15.84,5.
91,15.92,3.106,8.
β' 110,9.
γ' 102,12.
δ' 18,8.34,2.37,12.51,4.66,5.67,4.69,6.69,8.
ε' 35,17.67,2.88,3.
ζ' 23,3.54,22.

Ζ'α' 13,1.104,1.
β' 4,3.56,4.
γ' 33,16.35,9.51,5.56,7.72,2.84,15.95,2.95,12.
δ' 56,4.57,7.66,8.104,5.
ε' 57,5.
ζ' 54,10.83,5.103,12.
η' 14,1.24,15.38,2.

F O R M U L A No. 10





A'α' 3,5/6.11,8.16,3/4.21,9/10.22,4.23,8.27,3/4.29,8/9.36,7/8.66,2/3.
67,1/2.68,9/10.72,16/17.78,12/13.84,13/14.84,14/15.84,19/20.
90,7/8.92,10/11.97,8/9.106,2/3.106,11/12.
β' 102,18/19.
γ' 106,10/11.

B'α' 35,1/2.64,7/8.110,4/5.
β' 3,8/9.12,6/7.16,1.17,2/3.29,13/14.34,11.38,1/2.50,2/3.72,3/4.
102,22/23.
γ' 34,4.35,8/9.56,6/7.65,6.81,7/8.81,11/12.84,7/8.88,9.88,11/12.
95,1/2.
δ' 66,6/7.81,14/15.
ε' 33,2.
ζ' 48,11.68,16.

Γ'α' 48,4/5.51,2/3.69,4/5.79,4/5.
β' 3,11/12.33,10/11.54,17/18.95,3/4.
γ' 35,10/11.

Δ'α' 3,4.4,7*.11,11.17,6.24,10*.27,1.28,2*.29,1.35,14*.44,1.44,5/6*.
49,2.51,14.72,10*.72,15*.78,7.88,16*.97,5.102,7*.103,1.103,3.
103,14*.110,1*.
β' 78,3.

E'α' 13,4.24,7.24,12.38,3.54,5.54,19.64,6.65,1.67,4.
β' 12,6.78,1.95,1.106,2.
γ' 23,1.33,1.37,1.38,1.
δ' 23,10.33,3.72,13.

Z'α' 4,7.18,6.24,10.28,2.35,14.72,10.72,15.88,16.102,7.103,14.
β' 14,3.14,7.18,10.21,4/5.22,6/7.29,4/5.36,4.44,5/6.51,3/4.52,2/3.
56,14/15.90,1/2.91,1/2.97,13.102,2/3.110,1.
γ' 9,8.18,12/13.48,7/8.49,15.102,21.103,11/12.
δ' 22,1.22,11.48,3.79,4.84,6.
ε' 102,9.

H' 36,1.56,20/21.91,12/13.95,9/10.

θ' 66,1.

I'α' 103,4.
β' 54,6.

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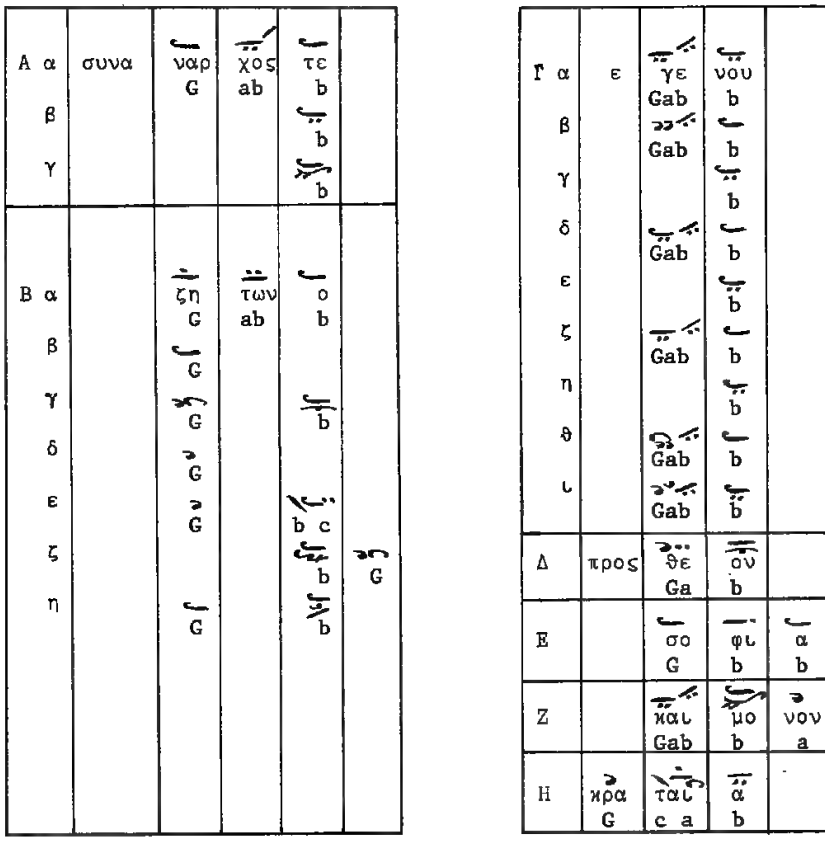
* The asterisk indicates a variant written with red ink above the regular formula. These variants are included in the number of occurrences.

F O R M U L A No. 11



A′α′ 3,6.18,6.29,1.44,14.51,14.78,13.97,5.97,13.103,3.106,12.
β′ 78,7.102,7.103,14.110,1.
γ′ 22,4.

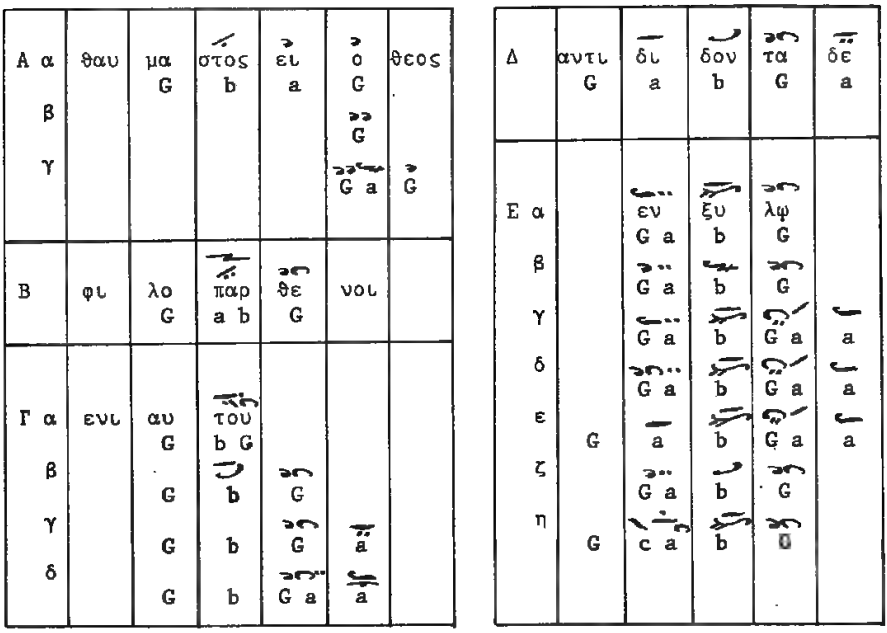
B′α′ 3,9.11,8.44,6.54,12.
β′ 27,5.38,9.38,10.
γ′ 18,1.
δ′ 3,1.11,1.38,3.54,5.55,1.65,12.
ε′ 24,7.56,1.92,1.
ζ′ 3,13.11,5.
η′ 102,12.

Γ′α′ 14,3.17,3.
β′ 24,1.14,9.17,1.102,1.
γ′ 102,11.54,2.
δ′ 38,8.
ε′ 54,1.
ζ′ 35,4.
η′ 102,29.
ϑ′ 37,4.
ι′ 90,5.

Δ′ 48,5.65,8.

E′ 4,1.24,18.38,4.102,3.102,16. Z′ 34,13. H′ 57,1.

F O R M U L A No. 12



Α'α' 3,1.13,4.24,7.24,12.38,3.54,5.54,19.56,1.57,1.92,1.
β' 36,4/5.
γ' 55,12.

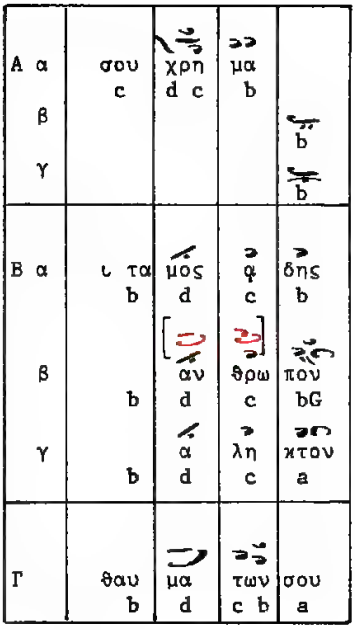
Β' 27,1.11,11.33,11.97,9.103,1.110,5.

Γ'α' 4,7.12,1.44,1.48,5.66,7.79,5.
β' 38,2.57,5.
γ' 16,9.
δ' 3,12.17,11.

Δ' 44,16.

Ε'α' 54,22.24,15,68,3.
β' 4,3.88,18.
γ' 29,11.
δ' 12,11.13,10.
ε' 44,3.
ζ' 14,1.
η' 102,16.

F O R M U L A No. 13



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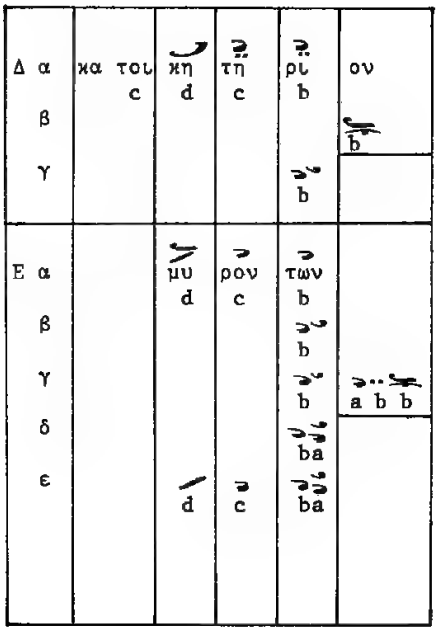

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γ				b	a b b
δ				ba	
ε		d	c	ba	

Α ʹα ʹ 97,1.
β ʹ 55,9.
γ ʹ 3,12.56,3.66,4.104,2.

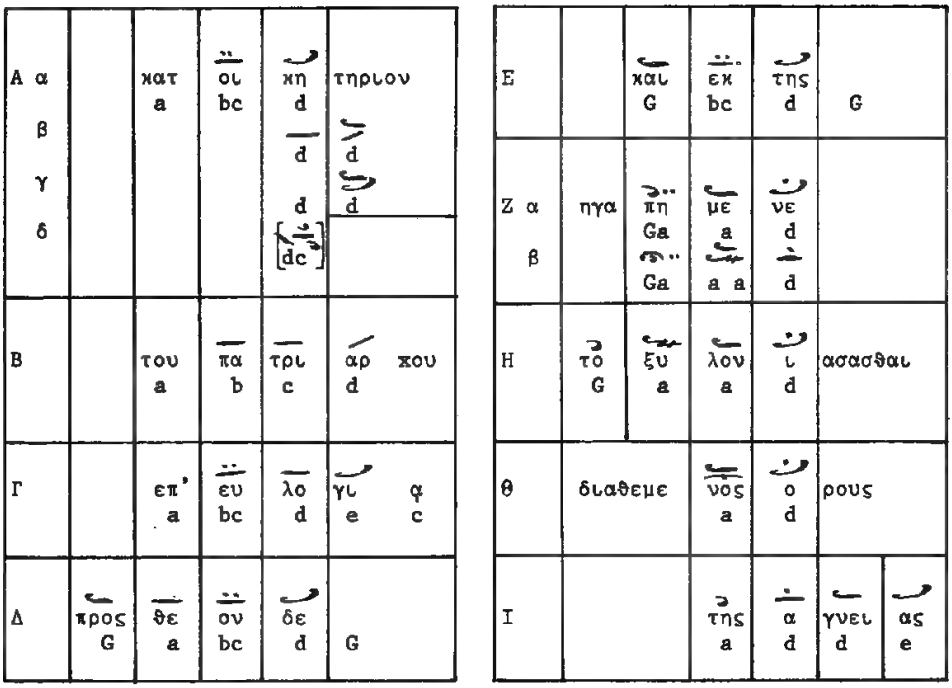
Β ʹα ʹ 29,10 24,2.13,7.36,9.44,7.55,10.92,12.
β ʹ 49,3.11,9.11,12.78,8.
γ ʹ 102,11.

Γ ʹ 16,5.18,7.18,11.28,7.29,15.38,4.54,2.65,7.91,18.97,6.97,14.103,5.
103,10.103,15.104,4.106,7.106,13.110,2.110,6.

Δ ʹα ʹ 29,3.37,8.37,9.54,14.54,20.
β ʹ 55,11.68,11.
γ ʹ 54,24.57,4.

Ε ʹα ʹ 16,5.13,7.27,2.
β ʹ 4,2.
γ ʹ 11,4.
δ ʹ 17,10.17,10.29,2/3.
ε ʹ 56,2.

F O R M U L A No. 14



Α'α' 29,3.27,8.37,8.37,9.37,11.54,14.54,24.55,11.68,11.
β' 27,2.
γ' 3,2.92,2.
δ' 66,4.

Β' 56,2.

Γ' 56,3.

Δ' 11,6.37,15.84,24.106,4.

Ε' 27,7.

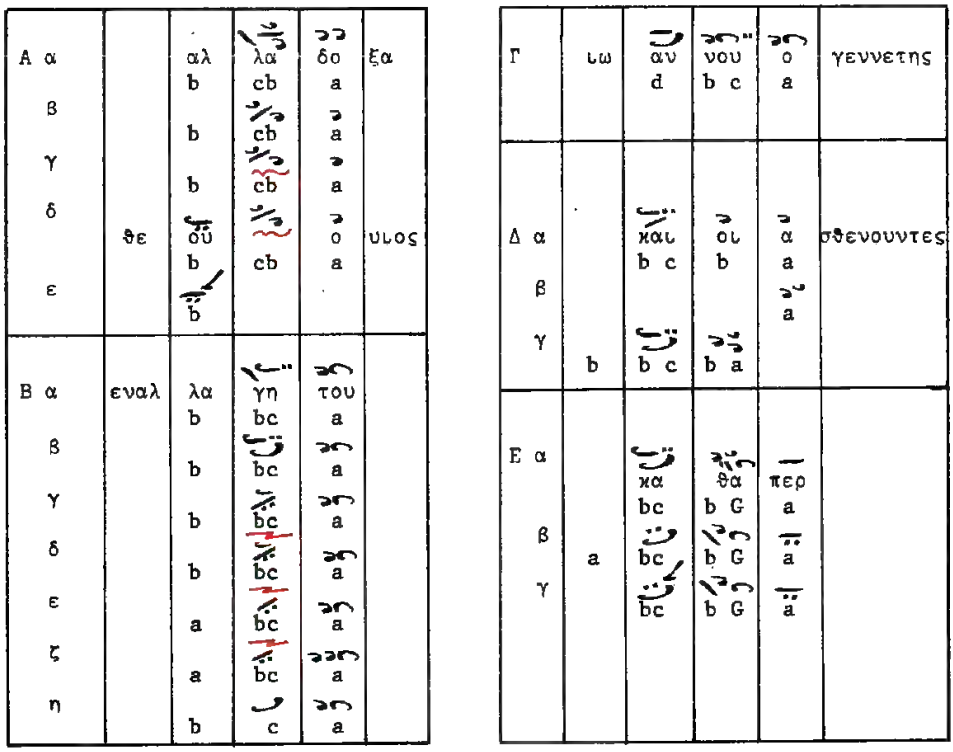
Ζ'α' 104,2.
β' 11,4.

Η' 54,20.

Θ' 3,12.55,8/9.

Ι' 97,1.

F O R M U L A No. 15



A ′α′ 54,24.68,11.
β′ 3,13.4,2.29,10.36,9.44,7.54,7.78,14.90,9.97,10.
γ′ 97,1.
δ′ 54,12/13.54,14/15.90,5.
ε′ 65,10.

B ′α′ 56,1/2.24,7/8.92,1/2.
β′ 3,6.13,8.17,1.21,4.22,8.35,5.38,8.44,9.44,15.51,15.81,4.88,19.92,12.
γ′ 11,5.14,10.24,2.33,12.37,5.84,21.102,3.102,17.
δ′ 3,9.21,11.48,6.
ε′ 12,1.12,2.14,7.44,1.48,9.49,6.84,23.
ζ′ 66,7.
η′ 14,4.

Γ′ 24,18.56,11.72,11.88,17.91,7.102,8.

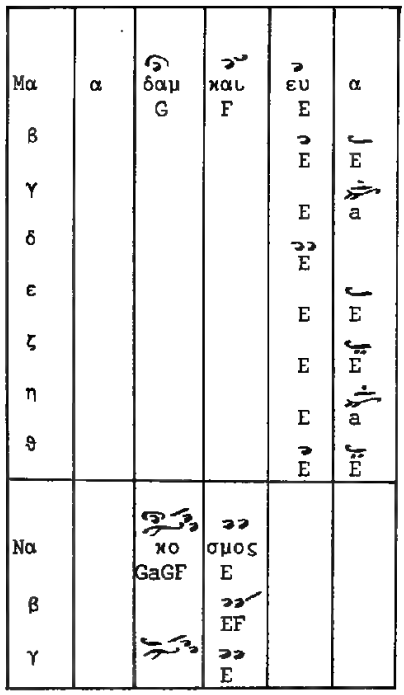
Δ ′α′ 17,3.84,2.102,30.103,2.
β′ 48,5.
γ′ 4,1.

E ′α′ 18,2.24,1.102,1.
β′ 102,13
γ′ 65,2.

FORMULA NO. 16

Αα	F	μο GF	νον E	E E	
β					
γ					
Βα	κρη G	πι GF EF	δα E E E		
β					
γ					
Γ	F	δο G	ξη F	και E	
Δα	E E G	αι G G G	θε F F	ρι E E EFD E E	ον E
β					
γ					
δ					
ε					
ζ					
Ε·	βασι	λε G	ων FE		
Ζα		α GF	κη E E E E Ea E	λιδωτον F a E	
β					
γ					
δ					
ε					
ζ					

Ηα	ειρη	νη GF	των E E EFG	νάι E πων F	
β					
γ					
δ προφητων		αι F	φω E		
ε	aG	δυ E	σω E		
η μων	aG				
θα	οδοι	σου G F G Γ	αν EF EF	ε G G G G a a	ξιχνιαστοι
β					
γ					
δ					
ε					
ζ					
Ια	τε	λει G E G E G E G E G E	FG G G	α G Gab	a
β					
γ					
δ					
ε					
ζ					
Κα	αγα	θε G G G	κυ EF	ριε G	
β					
γ					
Λα	ανω	τα G G	τω EF EFG	φι G	λοσοφιαν
β					


Μα
α
δαμ
G
καυ
F
ευ
E
α
E
a
E
E
E

H'α' 9,6/7.18,3.23,9.34,8/9.34,9.37,16.56,12.67,6.68,15.72,5.84,2/3.
95,14.
β' 9,5.
γ' 9,2.79,13.
δ' 66,1.84,1.
ε' 72,16
θ'α' 3,3.3,8.11,3.12,12.13,11.14,12.17,2.18,4/5.18,9.18,13/14.23,6/7.
24,16.35,12.44,10/11.44,19.48,13.54,11.55,7.66,13.72,9.72,18.79,18.
81,6.83,2.91,4/5.92,5/6.102,10.
β' 12,3.16,3.17,11.23,4.54,22/23.66,5.67,3.88,15.102,15.
γ' 44,13.
δ' 33,7.38,9.51,4.
ε' 102,32.72,17.
ζ' 34,5.

I'α' 3,5.4,4/5.4,11/12.33,13/14.34,6.35,6/7.37,17.66,2.68,13.90,6.102,33.
β' 16,6.21,3.68,18.
γ' 79,9.
δ' 34,7.
ε' 17,4.17,9.24,5/6.49,4/5.54,28/29.91,22.97,8.110,10.
ζ' 34,10.

K'α' 3,15.9,9.16,10.24,21.29,7/8.34,15/16.36,11.55,16.68,6.72,3.78,16.
84,13.92,8/9.92,13.95,3.97,4.97,12.103,8.106,17.110,4.111,11.
β' 12,8.97,15/16.111,9.
γ' 69,5.

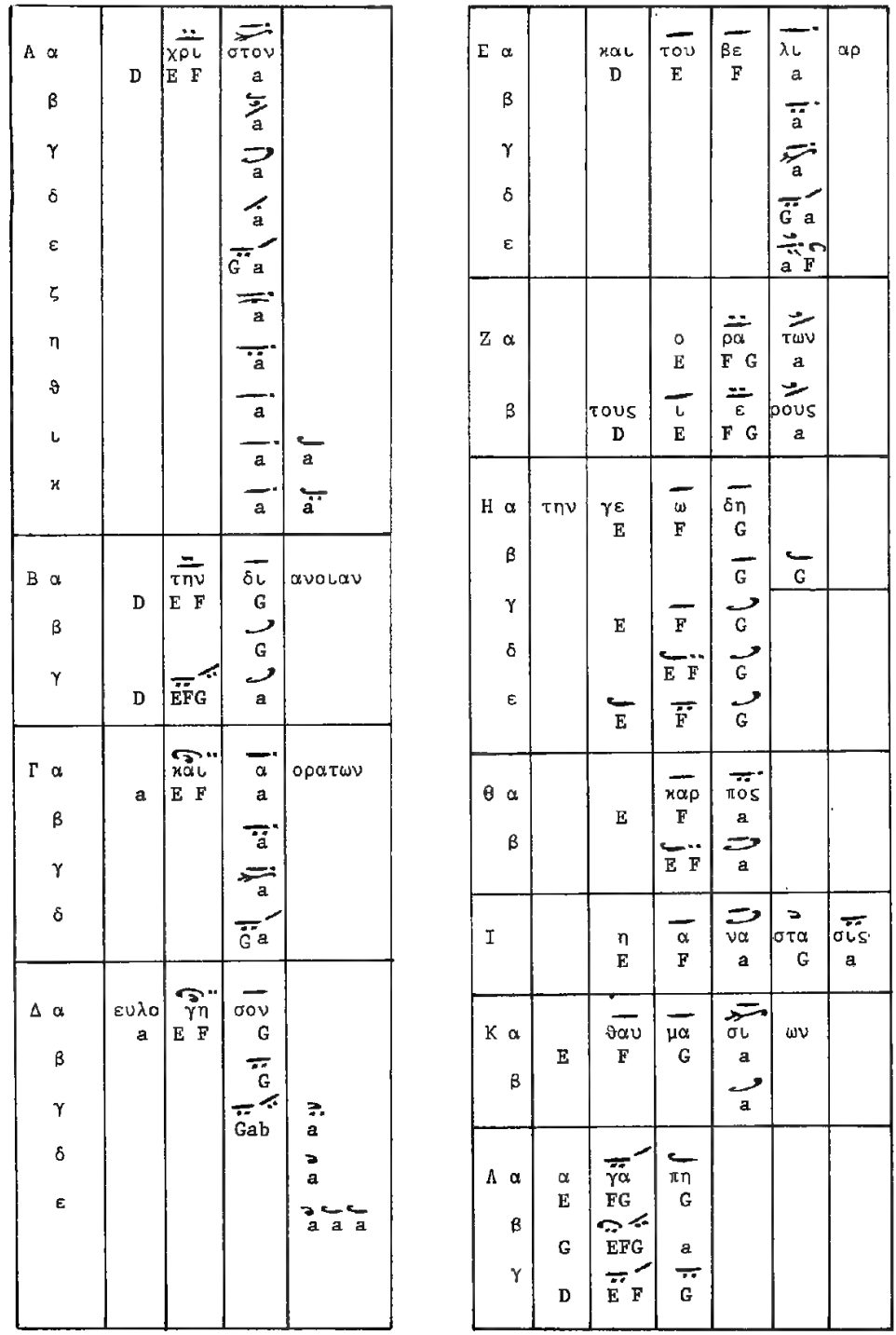
Λ'α' 14,2.17,5.24,9.29,17.35,20.36,6/7.54,4.54,22.67,5.81,18.83,5.84,10.
88,5.88,7.88,10.91,9/10.91,11.91,12.95,9.
β' 33,4.79,8.79,16.

M'α' 28,5.44,17.55,4.78,10.90,11.102,22.
β' 9,4.
γ' 81,13.
δ' 27,3.28,1.78,12.90,7.102,18.106,11.
ε' 14,6.54,18.67,9.72,13.
ζ' 28,10.106,9.
η' 81,10.
θ' 92,3.

N'α' 65,1.72,14.
β' 88,1.
γ' 35,3.35,15.

Ξ'α' 4,6.11,10.
β' 17,8.27,10.56,9.56,17.97,11.
γ' 64,9.
δ' 21,17.34,8.49,10.106,14.
ε' 34,10.
ζ' 16,1.35,8.56,6.65,6.95,1.
η' 81,7.81,11.88,8.

F O R M U L A No. 17



Α'α' 16,8.21,2.35,11.50,5.55,5.68,16.79,14.84,11.84,25,88,6.88,14.88,21.
β' 72,6.84,4.102,14.
γ' 21, 13.22,1.28,6. 33,6.49,10.84,1.
δ' 79,3.12,6.84,6.95,4.
ε' 9,8.28,11.54,18.90,7.102,22.
ζ' 95,1.
η' 14,5.35,1.49,1.49,15.50,9.65,4.
θ' 18,4.48,2.66,2.67,7.69,2.69,10.69,12.81,10.106,15.
ι' 9,2.49,8.64,10.79,2.
κ' 48,10.111,1.

Β'α' 11,7.21,7.21,9.21,18.22,11.23,11.27,11.33,3.33,5.33,10.34,3.37,3.
38,11.48,4.49,7.49,14.50,2.51,2.64,13.69,7.69,17.78,6.88,4.84,26.
88,23.92,10.95,8.102,28.111,3.111,5. 48,2
β' 69,9.69,11.69,13.
γ' 49,17.

Γ'α' 9,3.34,13.72,6.84,4.88,2.95, 12.97,2.102,14. 111,2.
β' 35,3,35,9.27,5.56,7.79,19.81,7.102,19.
γ' 9,5.14,8.44,18.51,5.72,2.84,15.95,2.95,5.
δ' 22,3.38,10.92,3.102,5.106,5.111,6.111,7.

Δ'α' 4,6.23,3.54,10.56,6.56,14.91,15.103,12.
β' 66,12.79,17.102,29.
γ' 23,10.84,18.
δ' 28,9.
ε' 68,5.

Ε'α' 56,10.56,18.72,13.81,13.102,32.
β' 18,13.78,1.78,3.
γ' 78,11.
δ' 9,8.102,31.106,2.
ε' 48,8.

Ζ'α' 9,3.9,5.28,9.44,18.66,12.95,5.102,5.102,29.111,8.
β' 23,3.23,10.54,10.68,5.84,18.91,15.102,19.103,12.

Η'α' 92,4.24,14.
β' 12,4.35,4.106,6.
γ' 9,7.95,7.
δ' 34,7.
ε' 49,12.88,13.

Θ'α' 11,2.21,16.
β' 37,2.48,3.64,4.

Ι' 67,8.

Κ'α' 33,15.
β' 111,4.

Λ'α' 12,9.24,17.44,12.69,14.
β' 79,20.
γ' 102,21.

F O R M U L A N O. 18.

Α α	ευ	λο	γη	σον	
		a	G	G	
β					
γ					
δ			Gab	a	
ε				a	
ζ			G a	a	
Β α	θαυμα	σι	ων		
		a	G	G	G
β					
γ				b G	a

Γ α	βελι	αρ	εν	αυτῳ	
		a	G	bG	a
β					
Δ α	τε	λουν	των		
		a	G		
β			G		
γ			G		
δ			G	a	E
Ε	μαλ	λον	δε		
		a	G		

Α'α' 9,5.50,5.51,5 .84,1.88,6.
β' 14,8.21,2.84,15.84,25.88,21.95,5.
γ' 44,18.
δ' 88,14.
ε' 78,11.95,2.
ζ' 72,2.

Β'α' 33,15.79,14.
β' 16,8.55,5.68,16.
γ' 35,11

Γ'α' 56,10.21,16.67,7.
β' 56,18.

Δ'α' 21,13.22,1.
β' 28,6.81,3.
γ' 33,6.
δ' 37,2.64,4.49,10.

Ε' 48,3.79,3.84,6

F O R M U L A NO. 19

	εν	ου	ρα	νοις
		a	b a a G	G

12,10.13,9.29;16*37,14*44,8.54,8*54,16*54,21.56,8.56,16*68,8.68,17*81,9*88,22.103,16.104,3.

F O R M U L A NO. 20

	δι	α	της	θε	οτοκου
	a	b c	b a	G	

4,10.54,1.90,12.92,7.95,15.103,18.

F O R M U L A NO. 21

	ευ E	ρη FGa	νη G

9,6.34,8.34,9.37,16.67,6.72,5.95,14.

Γ	και	αν Gc	να c	πα b	νηγυριζευ a

A′α′ 24,19.27,4.35,18.
β′ 55,13.
γ′ 78,9.91,3.
δ′ 91,19.

B′α′ 16,2.81,16.97,7.
β′ 36,5.
γ′ 66,12.

Γ′ 28,3.

F O R M U L A NO 22

A	ευς a	τον b	αι c	ω bcbc	να	
B	και d	αν d	υ d	φου dcbc	με bG	νον a

A′ 12,2.24,8.44,2.103,4.
B′ 68,7.

F O R M U L A NO. 23

	b	ο cd	σι b	ε

13,8.14,4.22,8.28,7.55,10.57,2.78,14.
81,4.

F O R M U L A NO. 25

A	με	μνη E	με FG	νοι E	
B		την E	μνη F G	μην F	τωνεγκαινιων G E

A′ 49,13.51,1.79,1.83,1.
B′ 50,1.

F O R M U L A NO. 24

A α	της	ελι	σα G c	βετ ba	
β			G c	ba	
γ			G c	ba	a
δ					a
B α		λει	φα G c	νων a	
β				c	
γ			G c	a	a

F O R M U L A NO. 26

A	ευ a	λο a	γη E	σον
B	φως b	προσ a	ε E	λαμβανες

A′ 4,6.56,6.56,14.79,19.81,7.
88,2.106,5.111,6.111,7.

B′ 14,8.34,13.35,3

F O R M U L A NO. 27

A α β		α G	γι a a	ψ D D
B		ι G	ε a	ρευς D E
Γ	κε	κλειι a	σμε a	νην D

A′α′ 9,1.48,1.51,1.79,1.83,1.
β′ 50,1.
B′ 21,1.67,1.
Γ′ 35,16.38,11.48,2.88,23.111,1.

F O R M U L A NO. 28

	η a	νω F G	με G	νος

14,7.21,4.22,6.23,5.35,19.44,5.
48,9.49,16.50,4.51,3.64,6.69,2.
79,2.84,7.84,23.91,6. 91,17.

F O R M U L A NO. 29

A α β γ	εγκαι	νι G	ζον a	ται c	γαρ b b b	
B α β γ		G	το cb	δι abc abc	και b b	ον b b
Γ		G	γαρ a	ρι bc	ζης b	

Δ		φυ G	σε ab	ως c	η b	μων c

A′α′ 48,5.54,1.
β′ 18,2.
γ′ 4,1.
B′α′ 24,12.
β′ 103,1.
γ′ 27,1.
Γ′ 33,11.
Δ′ 37,7.79,10.

F O R M U L A NO. 30

A		α	γα b	θης bcba
B α β			πα a ca	τρος bcba

A′α′ 11,1.29,3.37,8.37,9.54,1.
65,12.90,5.102,25.54,20.
B′α′ 4,2.54,24.57,4.
β′ 13,4.

F O R M U L A NO. 31

	δευ b	τε a

90,1.91,1

F O R M U L A NO. 32

A		θε E	ου EFED
B	αν	θρω G	τους EFED

A′ 21,7.22,1.78,4.79,8.79,16.
79,20.
B′ 35,19.69,2.

F O R M U L A NO. 33

A		του G	θε aF	ου G	
B	ανοι	γου G	aF	ται G	
Γ	θεολογιας G	aF	δο G	ξη	

A′ 3,4.12,9.21,11.21,16.27,7.33,15.
34,13.35, 4.35,9.37,11.56,10.
67,7.79,14.92,4.95,12.102,19.
106,6.106,7.106,15.
B′ 36,1.
Γ′ 102,28)29

F O R M U L A NO. 34

A α		b	εις a	σω G	τη	ριαν
β					a	
γ					a	
B α	η	των b	λει a	φα Ga	νων	
β					a	
γ					aD	
Γ α			ναι ba	o G		
β				Ga	a	
γ				Ga	b	
δ				G	a d	
Δ α			αυ ba	τη G		
				G		

A′α′ 3,13.11,5.18,3.22,5.24,13.56,4.
68,12.104,3.
β′ 18,8.110,9.
γ′ 22,10.24,3.37,12.81,5.84,26.
17,7.
B′α′ 13,1.104,1.
β′ 33,16.35,17.50,6.55,3.55,6.
55,8.57,3.67,2.110,7.
γ′ 88,3.
Γ′α′ 29,17.
β′ 29,2.56,2.
γ′ 17,10.
δ′ 17,10
Δ′α′ 90,5.
β′ 102,11.

F O R M U L A NO. 35

	αυλου E	πυ GF	ρος G

27,8.35,15.

F O R M U L A NO. 36

α	χο a	ρευ b	ων a
β			a

α′ 12,10.13,9.14,2.22,3.55,2.
92,8.
β′ 92,3.

F O R M U L A NO. 37

	νε b	ον G

18,1.37,7.79,10.97,1.

F O R M U L A NO. 38

	των	πο a	ρευ b G	θεν a	των

18,4.92,5.92,8.97,11.110,10

F O R M U L A NO. 39

α	ση ED	με CDE	ρον E			
β			E			
γ	α E	πο E	στο D	λε C	χρυ DE	στου E

α′ 64,1.64,5.
β′ 64,3.51,8.
γ′ 106,1.

F O R M U L A NO. 40

α	ξυ EF	λον ED	ε φα C D	νε F	ρω E	θη E
β					E	EF

α′ 64,2.
β′ 64,7.

F O R M U L A NO. 41

	εν EF	φιλ E	αν D	θρω CD	πι D	α D

33,9.

F O R M U L A NO. 42

α	ε E	πι E	γης E	DEF	E	
β			τον E F	αι D	ω EF	να E

α′ 33,5.
β′ 51,7.

F O R M U L A NO. 43

	ολ d	βι c	ος b a	υπαρχων G	92,7.

F O R M U L A NO. 44

α	τα	νε DEF	α E		48,3.79,4.
β				E	84,6.49,11.
γ				E	64,9.
				E	64,4.

F O R M U L A NO. 45

α	ευς b	δο cde	ξαν d	17,10.
β	b			97,9.

F O R M U L A NO. 46

	βλυ	στα d	νου a	σαν b	στερεας a

27,5.97,2.

F O R M U L A NO. 47

	ε b	ρα aG	σται a	27,2.

F O R M U L A NO. 48

	ευ α G	ση aE		με DE	ρον E

28,5.

F O R M U L A NO. 49

α	παρ a	θε GF	νι Ga	κη a
β		GF		

α′ 36,2.49,6.69,10.69,12.81,12
84,8. β′ 69,6.69,8.

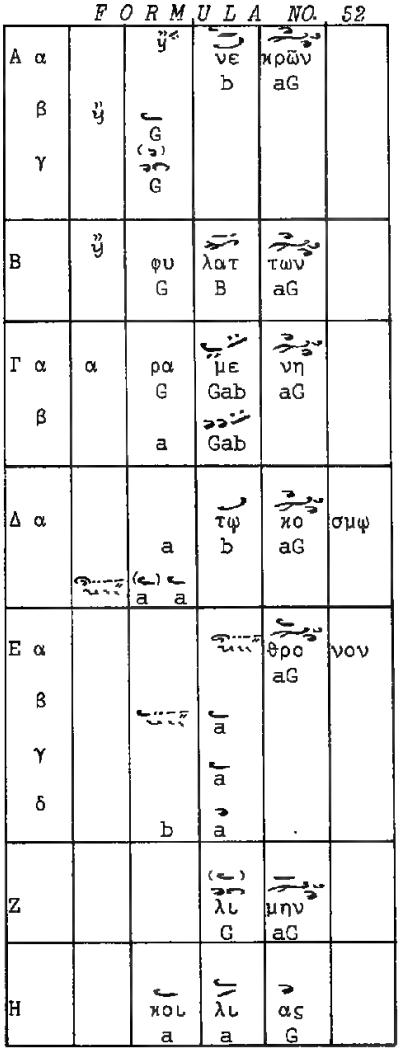
F O R M U L A NO. 50

	ατε	χνου G		σης G	27,7.

F O R M U L A NO. 51

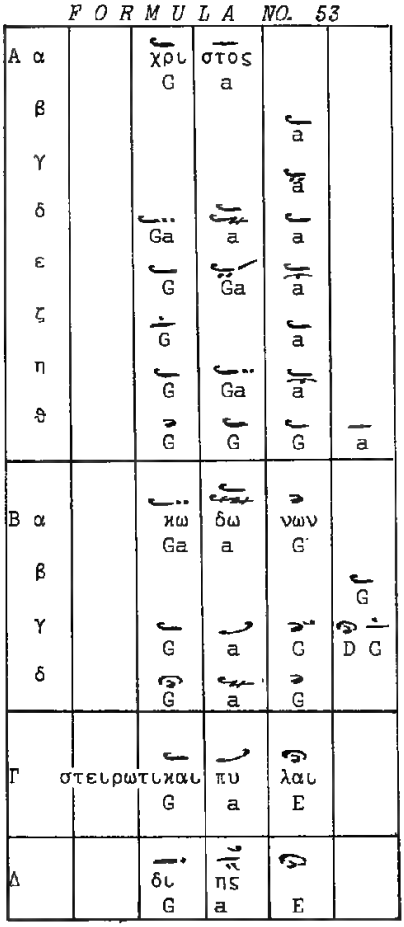
A	η	μεις· F Ga baG	48,11.51,8.79,5. 79,21.
Bα	απα	θους· G a baGa G a	54,21.
β		bc	29,16.
γ		b a	37,14.
Γ		δευ τε G c ba G G	103,6.
Δ α		ταυ την G FGa b aGF G F ED	29,14.34,1.34,12.
β		G	72,4.
E		θρο νοις· F EFGFEFG F ED	33,2.
Z		ση με ρου· a b cba b GaGF G aF G a b c ba bG baG	68,1.
H		φω στη ρα· a bcba b G b aGF G F ED	72,1.
θ	η	μων c db c ba c ba G	37,7.79,10.
I		χυ ρι ε· e ddc d ec d e cdb c eb c bac ba G ab	65,11.
K		ευ ε λε ει· e d d c d e d b c b a	66,10
Λ		δευ τε· a b aaGFG b a F G EFD	88,11.
M	μεγας	ει c e fd f ed	65,10.

F O R M U L A NO. 52



A ′α′. 67,8.88,20.102,16.
β′. 48,12.72,12.72,16.88,13.
γ′. 68,3.72,7.83,3.95,13.
B′ . 9,6.88,7.88,10.
Γ′α′. 91,9.
β′. 84,16.
Δ′α′. 36,6.79,8.79,16.
β′. 88,5.91,11.91,12.
E′α′. 33,4.
β′. 17,5.95,9.84,10.
γ′. 81,17.
δ′. 14,2.24,8.
Z′ . 27,8.67,4.95,6.65,3.
H′ . 29,17.54,4.

F O R M U L A NO. 53



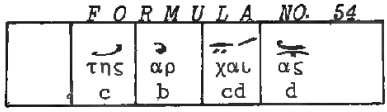
A′α′. 69,15.
β′. 72,15.91,13.
γ′. 11,13.
δ′. 37,9.
ε′. 69,16.
ζ′. 65,1.
η′. 69,14.
ϑ′. 50,7.

B′α′. 24,10.
β′. 106,3.
γ′. 24,14.
δ′. 68,14.

Γ′ . 36,1.79,16.

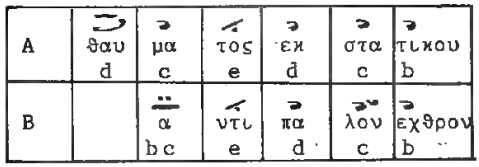
Δ′ . 102,32.

F O R M U L A NO. 54



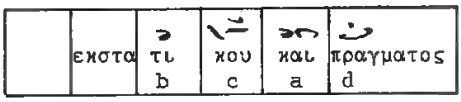
66,4.

F O R M U L A NO. 55



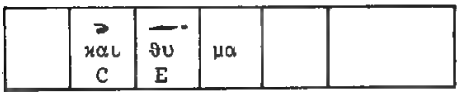
A'.102,24.102,25. B'.90,5.

F O R M U L A NO. 56



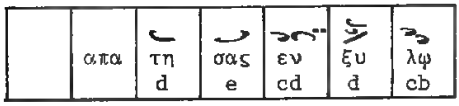
102,24/25.

F O R M U L A NO. 57



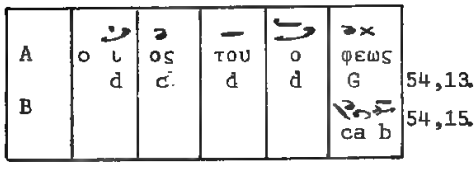
21,8.22,2.69,1.69,3.78,5.

F O R M U L A NO. 58



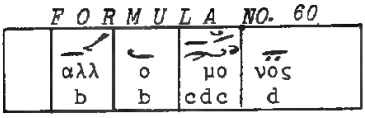
54,6.

F O R M U L A NO. 59



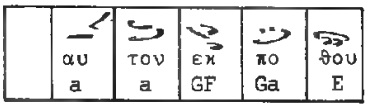
54,13.
54,15.

F O R M U L A NO. 60



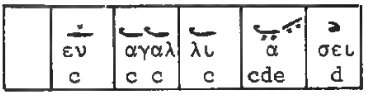
66,9.

F O R M U L A NO. 61



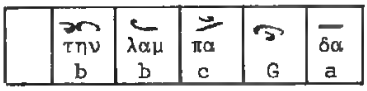
69,4.

F O R M U L A NO. 62



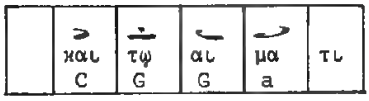
79,11.

F O R M U L A NO. 63



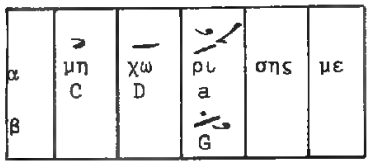
79,12.

F O R M U L A NO. 64



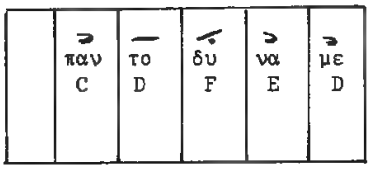
79,9.

F O R M U L A NO. 65



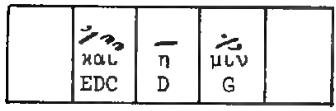
79,17.
35,20.

F O R M U L A NO. 66



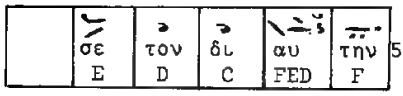
79,21.

F O R M U L A NO. 67



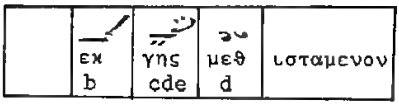
83,5.

F O R M U L A NO. 68



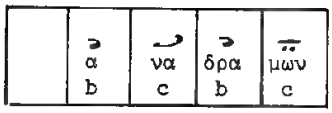
51,8.

F O R M U L A NO. 69



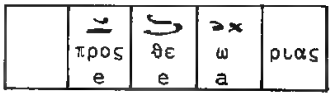
103,9.

F O R M U L A NO. 70



55,10

F O R M U L A NO. 71



55,11.

F O R M U L A NO. 72

11,4.

TABLE OF THE MELODIES

Interpretation:

In the following table each melody is represented by a series of numbers referring to its constituent formulas. The division of the melodies into lines has been retained. At the end of each line I have noted the kind of cadence formed, using the abbreviations explained on pp. 60-61.

Before the abbreviation for the cadence I have indicated the musical punctuation, and after it the grammatical punctuation.

Thus :.C1A E^F.· means

a) .at this point a leading-on cadence is formed on E^F of the type A;
b) there is a musical dot ;
c) there is a high point in the text.

Further conventions:

————	separates sections;
----------	separates colons;
10Zα (Δα)	a red variant (10Δα) of the regular formula 10Zα occurs above the latter;
(.)	the musical dot is not clearly discernible in the manuscript.

3

1	12Aα-11Bδ	.ClC	b ,
2	14Aγ-8Eβ	.CB	G ,
3	9Eα-7Aα-16θα-1Eβ-4Eα	.ClA	E^G
4	10Δα-2θβ-33A	.CB	G ,
5	9Aα-7Aβ-16Iα-1Eε	.ClA	E^F ,
6	-10Aα-11Aα	CC	b
	15Bβ-8Bβ	.CB	G
7	9Aα-8Γζ-	ClC	G^a
8	-7Bα-16θα-1Eη-10Bβ-	.ClA	E^D ,
9	-11Bα-15Bδ-8Bγ	.CB	G ,
10	9Γε-8Γε	ClC	G^a ,
11	3A-1Aβ-10Γβ-	.ClA	E
12	-12Γδ-	ClC	G^a
	-14θ-13Aγ	.ClB	b
13	34Aα-11Bζ-15Aβ-2Aβ	.CB	G .
14	9Aα-8Γζ	.ClC	G^a
15	7Aα-16Kα-1Eα	:-CA	E .

9

1	16Δβ-27Aα	.CC	D
2	17Aι-7Aα-16Hγ-1Δα	.CA	E ,
3	16Δβ-17Zα-17Γα-8Bβ	.CB	G
4	9Γα-7Γ-16Mβ	.CA	E ,
5	16Hβ-17Zα-17Γγ-18Aα	.CB	G ,
6	52B-21-16Hα-		
7	17Hγ-6Aγ	.CB	D ,
8	17Aε-10Zγ-17Eδ	ClC	Gα ,
9	7Aα-16Kα-1Eα	:-CA	E .

4

1	11E-15Δγ-29Aγ	.CB	b ,
2	15Aγ-13Eβ-30Bα	.ClB	b^a ,
3	9Zβ-12Eβ	.CC	G
4	9Aα-7Aβ-16Iα	(.)	
5	1Eα	.CA	E ,
6	26A-17Δα-7Γ-16Ξα-4Eγ	.ClB	E^G
7	10Δα-12Γα		
8	2Hα	.CB	G ,
9	9Aγ-7Aα-16Zε	.CC	E^a ,
10	20-9Γα	CC	α ,
11	7Aβ-16Iα		
12	1Eα	:-CA	F .

11

1	8θα-11Bδ-30A	.ClC	b^a
2	9Γα-7Aα-16Zα-17θα	,CC	a ,
3	7Aα-16θα-1Zβ	.CA	F ,
4	72-14Zβ-13Eγ	.ClB	b
5	34Aα-11Bζ-15Bγ-8Bγ	.CB	G ,
6	14Δ-6Γγ	.CC	D
7	17Bα-1Aα	,CA	E ,
8	16Δα(16Δγ)-10Aα-11Bα	CC	b
9	13Bβ-2Aβ	.CB	G
10	9Aγ-7Γ-16Ξα-4Eγ	.ClB	E^G
11	10Δα-12B-4Γβ	,CB	b ,
12	13Bβ-2Aβ	.CB	G
13	9Γη-53Aγ-	,	
14	3B-1Aα	:-CA	E .

12

1		12Γα-15Bε	CC	a
2		22A-15Bε	CC	a ,
3		16θβ-1Δβ	. CA	E ,
4		17Hβ-2Iβ	ClC	G^{a}
5		3A-1Aα	. CA	E ·
6		10Eβ-17Aδ-1Δη-10Bδ-	ClC	ED
7		2Eα	. CB	G ,
8		3Γ-19Kβ-1Eβ	. CA	E ,
9		17Λα-33A-2Aα	. CB	G ,
10		9Aα-36α-19-4Bδ	, ClC	a ·
11		8θγ-12Eδ	, ClC	G^{2}
12		7Aα-16θα-1Eα	:- CA	E .

14

1		8θα-12Eζ-9Zη	CC	a ,
2		36α-52Eδ-16Λα-1Γα	. CA	E ,
3		7Bδ-10Zβ-11Γα	CC	b ,
4		23-15Bη-2Aα	. CB	G ·
5		9Aδ -7Bα-16Zα-6Γβ-17Aη	CC	a
6		7Γ-16Mε	. CA	E ·
7		15Bε-28-10Zβ-4Aα	. CB	b ,
8		26B-17Γγ-18Aβ	. CB	G ,
9		9Aα-8Bα-11Γβ	CC	b
10		15Bγ-8Bγ	. CB	G ·
11		9Δε	CC	a
12		7Aα-16θα-1Zα	:- CA	E .

13

1		34Bα-9Zα-8Aα	. CB	G ,
2		9Eα-8Γζ	, ClC	G^{a},
3		3A-1Aα	. CA	E ·
4		10Eα-12Aα-30Bβ	ClC	b^{a}
5		9Eα-8Γζ	, ClC	G^{a},
6		3A-1Aβ	. CA	E .
7		13Eα-13Bα	CC	b
8		23-15Bβ-8Bγ	. CB	G ,
9		9Aα-36α-19-4Bδ	. ClC	a ,
10		8θγ-12Eδ	ClC	G^{a}
11		7Aα-16θα-1Eα	:- CA	E .

16

1		7Aγ-16Ξζ-10Bβ-2Bα	. CB	G
2		9Aα-8Bα-24Bα	ClC	G^{a},
3		16θβ-1Δδ-	. ClA	E^{F}.
4		-10Aα-4Aβ	. CB	b
5		13Eα-13Γ-2Aα	. CB	G ,
6		9Aγ-3E-16Iβ-1Eβ	· CA	E .
7		5Aα	CC	D ,
8		17Aα-18Bβ	. CB	G
9		12Γγ	ClC	G^{a}
10		-7Bα-16Kα-1Eα	:- CA	E .

17

1	8θβ-11Γα-15Bβ-8Zα	*C1C*	G^{α},
2	7Aα-16θα1Eη-10Bβ-	. *C1A*	E^{D},
3	-11Γα-15Δα-8Γε	*C1C*	G^{α}
4	7Aα-16Iε1Eα	. *CA*	*E* .
5	52Eβ-16Λα-16Δε-4Eβ	*C1B*	E^{G}
6	10Δα-2Hβ	. *CB*	*G* ·
7	9Aβ-34Aγ	*CC*	*a*
8	7Aα-16Eβ-6Γγ	. *CB*	*D* ,
9	8Hα-9Aα-7Aβ-16Iε-1Eα	. *CA*	*E* ,
10	45α	*CC*	*d*
	13Eδ-34Γδ-13Eδ-34Γγ	. *C1B*	*b* ,
11	12Γδ	*C1C*	G^{α}
	16θβ-1Γα	:- *CA*	*E* .

18

1	37-11Bγ	*C1C*	*b* ,
2	15Eα-29Aβ	. *C1B*	*b* ,
3	34Aα-9Γε-16Hα-5Bα	. *CB*	*D* ,
4	17Aθ-38-7Bα-16θα		
5	1Zβ-4Eα	. *C1A*	E^{G}.
6	10Zα-11Aα	*CC*	*b*
7	13Γ-2Aα	. *CB*	*G* ,
8	9Eδ-34Aβ-2Aβ	. *CB*	*G* ,
9	9Γε-7Aα-16θα-1Eα	. *CA*	*E*
10	7Aγ-10Zβ-4Γα	. *CB*	*b* ,
11	13Γ-2Aβ	. *CB*	*G*
12	9Δα-7Γ-10Zγ-	*C1C*	*E*
13	17Eβ-7Bα-16θα-		
14	1Eα	:- *CA*	*E*.

21

1	27B-5Aβ	. *CC*	*D*
2	17Aα-18Aβ	. *CB*	*G*
3	3E-16Iβ-1Eα	. *CA*	*E* ·
4	28-10Zβ-		
5	2Aβ	. *CB*	*G*
6	9Bα-8Zδ	*C1C*	G^{α}
7	17Bα-1Bδ-32A	. *C1A*	E^{D},
8	57-5Aα	*CC*	*D*
9	17Bα-1Aε	. *C1A*	E^{F}·
10	-10Aα-4Aβ	. *CB*	*b*
11	15Bδ-8Eα-33A	. *CB*	*G* ,
12	9Γα-7Aα-16Zα	*CC*	*E*
13	6Aγ-17Aγ-18Δα	*CC*	*G*
14	15Bβ-8Bβ	. *CB*	*G*
15	9Γα-7Aα-16Zα	*CC*	*E* ,
16	17θα-18Γα-33A	. *CB*	*G*
17	7Γ-16Eδ-6Aα	*CC*	*D*
18	17Bα-1Aα	:- *CA*	*E* .

22

1	10Zδ-17Aγ-18Δα-16Δγ-32A.	*C1B*	E^{D},
2	57-5Aα	*CC*	*D*
3	36α-17Γδ-7Aδ-16Δγ	. *CA*	*E*·
4	16Δα-10Aα-11Aγ	*CC*	*b*,
5	34Aα-2Zβ	. *CB*	*G*·
6	9Γε-28-10Zβ-		
7	4Γβ	. *CB*	*b*,
8	23-15Bβ-8Bβ	. *CB*	*G*,
9	9Eα-8Γγ-8Δβ-	. *C1C*	*a*
10	9Aβ-34Aγ	, *CC*	*a*
11	-7Bδ-10Zδ	*CC*	*D*
	17Bα-1Aα	:- *CA*	*E*.

23

1	10Eγ	CC	E
	16Bα	CC	F
2	5Aα	.CB	D
3	17Zβ-17Δα-9Eζ	CC	a ,
4	16Θβ-1Δγ	.CA	E^{a}·
5	28-2Bβ	.CB	G
6	9Bα-7Aα-16Θα-	.	
7	1Δα	.CA	E ,
8	16Δα(16Δγ) 10Aα-2Bα	.CB	G ,
9	9Aα-16Hα-5Aβ	.CB	D
10	10Eδ-17Zβ-17Δγ	,ClC	G^{a}
11	17Bα-1Aα	:-CA	E .

24

1	8Θβ-11Γβ-15Eα	ClC	b^{G}
2	13Bα-15Bγ-8Bβ	.CB	G ·
3	9Aβ-34Aγ	CC	a
4	2Aα	.CB	G ,
5	9Bα-7Aβ-16Iε-		
6	1Eα	.CA	E ,
7	10Eα-12Aα-11Bε-15Bα-	.ClC	b^{e},
8	22A-52Eδ		
9	16Λα-1Δβ-4Eα	.ClA	E^{G}
10	10Zα(10Δα)-53Bα-2Δγ	,ClC	G^{a}·
11	3A-1Aα	.CA	E ·
12	10Eα-12Aα-29Bα	.ClB	b
13	34Aα-9Γα	CC	a
	3A-1Aβ	.CA	E ,
14	17Hα-53Bγ-		
15	12E-9Zη	CC	a
16	7Aα-16Θα-1Zα	.CA	E .
17	17Λα-2Bα	.CB	G ,
18	11E-15Γ-8Bγ	.CB	G ,
19	24Aα-2Aβ	.CB	G ,
20	9Γδ-8Zε	ClC	G^{a}
21	-7Bα-16Kα-1Eα	:-CA	E .

27

1	10Δα-12B-29Bγ	ClC	b
2	14Aβ-13Eα-47	(.ClC	a ·
3	9Bδ-7Γ-16Mδ	ClC	E^{F}
4	-10Aα-24Aα-2Aβ	.CB	G ,
5	11Bβ-46-17Bγ		
6	2Δα	.CB	G
7	14E-33A-50	CC	G
8	14Aα-52Z-35	.CB	G ,
9	9Aδ	CC	a
10	-7Bα-16Eβ-6Γγ	CC	D
11	17Bα-1Aα	:-CA	E .

28

1	7Γ-16Mδ-4Eβ	.ClB	E^{G}
2	10Zα(10Δα)-2Aα	.CB	G ;
3	9Γη-24Γ-2Zα	.CB	G ,
4	9Bα-8Zα	ClC	G^{a},
5	7Γ-16Mα-48	.CA	E ·
6	6Aα-17Aγ-18Δβ	CB	G
7	23-13Γ-2Aα	.CB	G
8	9Bγ-7Aα-16Zα	CC	E
9	17Zα-17Δδ	ClC	G^{a}
10	7Γ-16Mζ	.CA	E ,
11	6Aγ-17Aε	ClC	G^{a}
12	3A-1Aα	:-CA	E .

29

1	10Δα-11Aα	*CC*	*b*
2	13Eδ-34Γβ	*ClC*	G^{a}
3	14Aα-13Δα-30A	*.ClB*	b^{a}
4	9Γα-7Γ-10Zβ-		
5	2Bα	*.CB*	*G*
6	9Bα-8Γα	*ClC*	C^{a},
7	8Aβ-9Γα-7Aα-16Kα-		
8	1Eε	*.ClA*	E^{F}.
9	-10Aα-4Aβ	*.CB*	*b*
10	13Bα-15Aβ-2Aβ	*.CB*	*G* ,
11	12Eγ	*ClC*	G^{a}
12	8Aβ-9Γε-		
13	3A-1Aζ-10Bβ-	*.ClA*	E^{D}.
14	-51Δα	*CB*	*D*
15	13Γ-2Aβ	*.CB*	*G* .
16	9Aα-19-51Bβ	*.ClB*	$G^{b}c$
17	34Γα-9Γε-52H-16Λα-1Γα:	*-CA*	*E*.

33

1	10Eγ	*CC*	*E*
2	10Bε-51E	*.CC*	*D*
3	10Eδ-17Bα-1Δγ	*.CA*	E^{a}
4	52Eα-16Λβ-16Δε	*CC*	*E*
5	42α-6Aβ	*CC*	*D*
	17Bα-1Aα	*.CA*	*E* .
6	6Aβ-17Aγ-18Δγ	*CB*	*G*
7	9Γδ-16Θδ	*.CB*	*G*
8	9Γδ-7Aα-16Zβ	*CC*	*E*
9	41	*CC*	*D*
10	17Bα-1Aβ-	*.ClA*	*E* .
11	-10Γβ-12B-29Γ	*ClC*	*b*
12	15Bγ-8Bβ	*.CB*	*G*
13	9Aα-7Aβ-16Iα-		
14	1Zβ	*.CA*	*E* .
15	17Kα-18Bα-33A	*.CB*	*G* ,
16	9Zγ-34Bβ	*.ClC*	G^{a},
17	3A-1Aα	*:-CA*	*E*.

34

1	51Δα	*.CB*	*D*
2	9Eδ-8Γβ	*ClC*	G^{a},
3	17Bα-1Bβ	*.CA*	*E* .
4	10Bγ-2Eβ	*.CB*	*G* ,
5	9Γθ-2θα-16θζ	*.CC*	*a*
6	7Aβ-16Iα-1Eα	*.CA*	*E* .
7	17Hδ-16Iδ	*ClC*	G^{a}
8	7Γ-16Ξδ-21-16Hα-		
9	21-16Hα-6Γβ	*CC*	*D*
10	16Ξε-6Aβ-16Iζ		
11	1Γδ-10Bβ-	*.ClC*	E^{D},
12	-51Δα (26B)	*.CB*	*D*
13	11Z-17Γα-8Zβ-33A	*.CB*	*G*
14	9Eα-8Γα	*ClC*	G^{a}
15	7Aα-16Kα		
16	1Eα	*:-CA*	*E* .

35

1	17Aη-1Hβ-	*ClC*	E^{F}
2	-10Bα-4Γβ	*.CB*	*b*
3	26B-17Γβ-2Aα-16Nγ	*.ClB*	G^{F},
4	17Hβ-33A-11Γζ	*ClC*	G^{b}
5	15Bβ-8Γε	*ClC*	G^{a}
6	7Aβ-16Iα-		
7	1Eα	*.CA*	*E* .
8	7Aγ-16Ξζ-10Bγ-	*ClC*	E^{D}
9	9Zγ-17Γβ-8Δα-33A	*.CB*	*G*
10	7Bδ-16Δζ	*ClC*	E^{F}
11	-10Γγ-17Aα-18Bγ	*ClC*	G^{a}
12	7Aα-16θα-1Zα	*.CA*	*E* .
13	7Bδ-16Bβ-4Eβ	*ClC*	E^{G}
14	10Δα-2Δβ	*.CB*	*G* ,
15	16Nγ-35	*CC*	*G*
16	27Γ-2Bα	*.CB*	*G* .
17	9Eε-34Bβ	*ClC*	G^{a}
18	24Aα-2Δβ	*.CB*	*G* ,
19	28-32B	*ClC*	E^{D}
20	65β-16Λα-1Eα	*:-CA*	*E* .

36

1	10H-53Γ-6Aβ-33B	.CB	G ,
2	9Eα-49α	,ClC	a
3	3A-1Aγ	.CA	E^{a}.
4	7Bγ-10Zβ-12Aβ-		
5	24Bβ-2Aβ(2Γ)	.CB	G ,
6	9Aα-52Δα-16Λα-		
7	1Γζ-	.ClA	E^{F},
8	-10Aα-4Aβ	.CB	b
9	13Bα-15Aβ		
10	2Iα	.ClC	G^{a}
11	7Aα-16Kα-1Eα	:-CA	E .

38

1	10Eγ-10Bγ-	ClC	E^{D}
2	12Γβ-9Zη	CC	**a**
	3A-1Aα	.CA	E
3	10Eα-12Aα-11Bδ	.ClC	b
4	11E-13Γ-2Aβ	.CB	G
5	9Γε-3A		
6	1Bβ	.CA	E ,
7	5Aα	CC	D
8	11Γδ-15Bβ-8Bγ	.CB	G
9	11Bβ-2θγ-16θδ	.CB	G ,
10	11Bβ-2θγ-8Zζ-17Γδ	ClC	G^{a}
11	27Γ-17Bα-1Aα	:-CA	E .

37

1	10Eγ	CC	E
2	17θβ-18Δδ-6Aβ	CC	D
3	17Bα-1Aγ	.CA	E^{a}
4	7Bγ-11Γϑ	ClC	G^{b}
5	15Bγ-8Γε	ClC	G^{a}
6	3A-1Aδ	.CA	E^{b}
7	37-29Δ-51θ	CC	G
8	14Aα-13Δα-30A	.ClB	b^{a}
9	53Aδ-14Aα-13Δα-30A	.ClB	b^{a}
10	9Aα-8Γδ	.ClC	G^{a}
11	14Aα-33A	.CC	G
12	9Eδ-34Aγ-2Δβ	.CB	G ,
13	9Aα		
14	19-51Bγ	.ClC	a
15	14Δ-6Γβ	.CB	D
16	21-16Hα-6Γβ	CC	D
17	7Aβ-16Iα-1Eα	:-CA	E .

44

1	10Δα-12Γα-15Bε	.CC	a
2	22A-8Eα-		
3	12Eε	ClC	G^{a},
4	3A-1Aα	.CA	E ,
5	28-10Zβ(10Δα)-	.ClB	E ,
6	11Bα	CC	b
7	13Bα-15Aβ-2Aβ	.CB	G ,
8	9Aα-19-4Aδ	.CB	b
9	15Bβ-8Bβ	.CB	G
10	9Γε-7Aα-16θα-		
11	1Zα	.CA	E ,
12	17Λα		
13	16θγ-2Bα	.CB	G
14	11Aα	CC	b
15	15Bβ-8Bβ	.CB	G ,
16	12Δ-	ClC	G^{a}
17	-7Bδ-16Mα-5Aα	.CB	D
18	17Zα-17Γγ-18Aγ-	.ClC	G^{a}
19	-7Bα-16θα-1Eα	:-CA	E .

48

1		16Δβ-27Aα	CC	D
2		17Aϑ-27Γ-17Bα-16Aγ	CA	E
3		17ϑβ-18E-10Zδ-44α	CC	E
4		6Aα-17Bα-16Aγ-	ClA	E
5		-10Γα-12Γα-29Aα	CC	b
		15Δβ-11Δ	ClC	b
6		15Bδ-8Bγ	CB	G
7		9Δγ-7Aδ-10Zγ-	ClC	E
8		17Eε-7Bα-16Zδ	CA	E^a
9		15Bε-28-16Bα	CC	E
10		6Γα-17Aϰ		
		3B-1Bβ	CA	E
11		10Bζ-51A	CB	G
12		52Aϑ-5Aα(5Bβ)	CC	D
13		7Aα-16ϑα-1Eα	:- CA	E

50

1		25B-27Aϑ	CC	D
2		6Aα-17Bα-1Aζ-10Bβ-	ClA	E^D
3		-4Bα	ClC	a
4		28-16Bα	CC	E
5		6Γα-17Aα-18Aα	CB	G
6		9Γζ-34Bβ	ClC	G^a
7		53Aϑ-2Δα	CB	G
8		7Γ-16Δβ-6Γα-		
9		17Aη-1Hα	:- CA	E

49

1		17Aη-7Bδ-16Δζ-4Eα	ClB	E^G
2		10Δα-4Γβ	CB	b
3		13Bβ-2Aβ	CB	G
4		9Aα-7Aβ-16Iε-		
5		1Eγ	CA	E^a
6		15Bε-49α	ClC	a
7		17Bα-1Aβ	CA	E
8		6Bα-17Aι	CC	a
9		3A-1Aγ	CA	E^a
10		7Γ-16Ξδ-6Aβ-17Aγ-18Δδ		
11		6Aβ-44β	CA	E
12		17Hε-16Aα	CC	E
13		25A-6E	CC	D
14		17Bα-1ϑ	ClC	E^G
15		10Zγ-17Aη-2Aγ	CB	G
16		28-16Bϑ	CC	E
17		6Γβ-17Bγ-1Γα	:- CA	E

51

1		25A-27Aα	CC	D
2		17Bα-1Δζ-10Γα-	ClA	E
3		-28-10Zβ-	ClB	E
4		-9Eδ-16ϑδ	CB	G
5		9Zγ-17Γγ-18Aα	CB	G
6		7Aδ-16Δε	CC	E
7		16Δβ-42β	CC	E
8		39β	CC	E
		6ϑ-51A,	CB	G
9		9Γα-8Γζ	ClC	G^a
10		3A-1Aα	CA	E
11		5Aα	CC	D
12		3A-1Aα	CA	E
13		16Bγ-4Eβ	ClC	E^G
14		10Δα-11Aα	CC	b
15		15Bβ-8Γα	ClC	G^a
16		3A-1Aα	:- CA	E

54

1	11Γε-20-29Aα-30A	ClB	b^a ,
2	9Eα-8Bα-11Γγ	ClC	G^b
	13Γ-2Aβ .	CB	G ,
3	9Aδ ,	CC	a
4	52H-16Λα-1Γα .	CA	E ·
5	10Eα-12Aα-11Bδ	ClC	b
6	10Iβ-58	CC	b
7	15Aβ-2Aα .	CB	G ,
8	9Bα-19-4Bβ .	ClC	a
9	7Bα-16Zα-6Γβ .	CB	D ,
10	17Zβ-17Δα-9Zζ	CC	a
11	7Aα-16Θα-1Eδ .	CA	E^b ·
12	8Θα-11Bα-15Aδ- .	ClC	b
13	59A		
14	14Aα-13Δα-15Aδ- .	ClB	b ·
15	59B .	ClB	b
16	9Γα-19-4Bβ .	ClC	a
17	7Γ-16Mδ-10Γβ	ClC	E
18	17Aε-7Γ-16Mε .	CA	E ·
19	10Eα-12Aα-		
20	14H-13Δα-30A .	ClB	b^a ,
21	9Bα-19-51Bα .	ClC	a
22	12Eα-9Eζ-16Θ8(16Λα)-		
23	1Γβ .	CA	E .
24	15Aα-14Aα-13Δγ-30Bα	ClB	b^a ,
25	9Eα-8Γβ	ClC	G^a
26	9Bα-8Bγ .	CB	G ,
27	9Γα-8Γα	ClC	G^a
28	7Aβ-16Iε		
29	1Eα :-	CA	E .

55

1	8Θα-11Bδ	ClC	b
2	36α-7Γ-10Zβ- .	ClB	E
3	9Bβ-34Bβ	ClC	G^a
4	7Γ-16Mα-5Bα .	CB	D
5	17Aα-18Bβ .	CB	G ,
6	9Bβ-34Bβ	ClC	G^a
7	7Aα-16Θα-1Zα .	CA	E ·
8	34Bβ	ClC	G^a
9	-14Θ-13Aβ .	CB	b ,
10	13Bα(23)-70-4Δ .	CC	d
11	71-14Aα-13Δβ (.)	ClBb	,
12	12Aγ	CC	G
13	9Γη-24Aβ-2Aα (.)	CB	G
14	9Γη	ClC	G^a
15	7Aα-16Kα-1Eα :-	CA	E .

56

1	12Aα-11Bε-15Bα-	ClC	b^c
2	14B-13Eε-34Γβ .	ClC	G^a ,
3	14Γ-13Aγ .	ClB	b ,
4	34Aα-9Zβ-9Zδ	CC	a
5	3A-1Aα .	CA	E ·
6	26A-17Δα-7Γ-16Ξζ-10Bγ .	ClB	E^D
7	9Zγ-17Γβ-8Δγ .	CB	G ,
8	9Γα-19-4Bβ .	ClC	a
9	7Bα-16Ξ8-6Γβ .	CB	D ·
10	17Eα-18Γα-33A	CC	G
11	15Γ-8Bγ (.)	CB	G ,
12	9Aα-16Hα-5Aα(5Bβ)	CC	D
13	3A-1Aα .	CA	E .
14	26A-17Δα-7Γ-10Zβ-		
15	2Zδ .	CB	G
16	9Aα-19-4Bβ .	ClC	a
17	7Aα-16Ξβ-6Γβ .	CB	D
18	17Eα-18Γβ	ClC	G^a
19	3A-1Aη .	CA	E^G ·
20	16Δγ-10H-		
21	2Zγ .	CB	G ·
22	9Δγ-8Γγ-8Δβ-	ClC	a ,
	9Γε ,	CC	b ,
23	3A-1Aα :-	CA	E .

57

1	12Aα-11H	CB	b
2	23		
3	34Bβ	ClC	G^a
4	13Δγ-30Bα	ClB	$b^{a\cdot}$
5	12Γβ-9Zε	CC	a
6	2Aβ	CB	G ,
7	9Γη-9Zδ	CC	a
8	3A-1Aα	:- CA	E .

64

1	39α	CC	E
2	40α	CA	E ·
3	39β	CC	E
4	17Θβ-18Δδ-6Aβ-44γ	CA	E ,
5	39α	CC	E
6	10Eα-28-16E	CC	E
7	40β-	ClA	$E^{D\cdot}$
8	-10Bα-4Bβ	ClC	a
9	7Aδ-16Ξγ-6Aβ-44β	CA	E ,
10	6Γα-17Aι	CC	a
11	3A-1Aβ	CA	E .
12	5Aα(5Bβ)	CC	D
13	17Bα-1Aα	:- CA	E .

65

1	10Eα-53Aζ-7Aε-16Nα	CB	E
2	15Eγ-2Aβ	CB	G ,
3	9Δδ-52Z		
4	5Aα-17Aη	CC	a ,
5	3A-1Aγ	CA	E^{a},
6	7Aγ-16Ξζ-10Bγ-4Γβ	CB	b
7	13Γ-2Δβ	CB	G
8	9Aβ-11Δ	ClC	b
9	3A-1Aβ	CA	E .
10	15Aε-51M		
11	51I	ClB	G^{b},
12	30A-11Bδ	ClC	b
13	3A-1Aα	:-CA	E .

66

1	10Θ-16Hδ	CB	E
2	6Aγ-17Aϑ-7Aβ-16Iα-1Eε.	ClA	E^{F},
3	-10Aα-4Aβ	CB	b
4	54	ClC	b
	14Aδ-13Aγ	ClB	b
5	9Eδ-16Θβ-1Δγ	CA	$E^{a\cdot}$
6	7Aδ-16Δδ-10Bδ -	ClB	E^{D},
7	-12Γα-15Bζ-2Δα	CB	G ,
8	9Γη-9Zδ	CC	a
	3A-1Aβ	CA	E .
9	60-4Δ	CC	d
10	51K	CC	a
11	9Bγ-7Aα-16Zβ	CA	E ,
12	17Zα-17Δβ-24Bγ	ClC	G^{a},
13	7Aα-16Θα-1Eα	:-Ca	E .

67

1	27B-	ClB	E^{F},
2	-10Aα-9Eε-34Bβ	ClC	G^{a},
3	16Θβ-1Δα	CA	E ,
4	10Eα-9Eδ-52Z		
5	16Λα-1Γβ	CA	E ,
6	21-16Hα-6Γα	CC	D ,
7	17Aϑ-18Γα-33A	CB	G ,
8	52Aα-17I	CC	a ,
9	7Γ-16Mε	:-CA	E .

68

1	51Z	CB	G
2	2Δα	CB	G
3	12Eα-52Aγ		
4	5Aα(5Bβ)	CB	D,
5	17Zβ-17Δε	ClC	G^{a}
6	7Aα-16Kα-1Eα	CA	E
7	22B-2Δβ	CB	G,
8	9Aα-19-4Bβ	ClC	a
9	3A-1Aε-	ClA	E^{F},
10	-10Aα-4Aβ	CB	b
11	15Aα-14Aα-13Δβ	ClB	b
12	34Aα-9Aγ-8Zα	ClC	G^{a}
13	7Aβ-16Iα-1Eγ	CA	E^{a}
14	7Bδ-53Aβ(Bδ)-2Aβ(Bβ).	CB	G
15	9Δγ-16Hα-5Δ	CC	E,
16	10Bζ-17Aα-18Bβ	CB	G,
17	9Aα-19-4Bδ	ClC	a
18	3Z-16Iβ-1Eα	:-CA	E.

69

	57-5Aβ	CC	D
2	17Aϑ-28-32B	ClB	E^{D},
3	57-5Aα(5Bβ)	CC	D
4	61-10Γα-		
5	16Kγ-1Eα	CA	E,
6	9Eδ-49β	ClC	a
7	17Bα-1Γα	CA	E
8	9Eδ-49β	ClC	a
9	17Bβ-16Aγ	CA	E
10	6Bα-17Aϑ-49α	ClC	a,
11	17Bβ-16Aβ	CA	E
12	6Bα-17Aϑ-49α	ClC	a,
13	17Bβ-16Aβ	CA	E
14	17Λα-53Aη	CC	a
15	53Aα-2Aα(2Bα)	CB	G'
16	53Aε	CC	a
17	17Bα-1Aα	:-CA	E.

72

1	51H	CB	D
2	9Zγ-17Γγ-18Aζ	ClC	G^{a},
3	7Aα-16Kα-1Zγ-10Bβ-	ClA	E^{D}
4	-51Δβ	CB	D
5	21-16Hα-6Γβ	CC	D
6	17Aβ-17Γα-8Bβ	CB	G,
7	9Γη-52Aγ		
8	6Bβ	ClC	D^{a},
9	7Aα-16θα-1Eβ-4Eα	ClA	E^{G},
10	10Zα(10Δα)-4Γβ	CB	b
11	15Γ-8Bβ	CB	G,
12	52Aβ-5Aβ(5Bα)	CC	D
13	10Eδ-17Eα-7Γ-16Mε	CA	E
14	7Aε-16Nα-4Eβ	ClC	E^{G}
15	10Zα(10Δα)-53Aβ-2Aα.	CB	G,
16	52Aβ-16Hε-10Aα-	ClC	E^{F}
17	2θβ-16θε	ClC	a,
18	7Aα-16θα-1Eα	:-CA	E.

78

1	10Eβ-17Eβ-7Bδ		
2	16Δζ-4Eα	ClB	E^{G},
3	10Δβ-17Eβ-7Bδ		
4	16Δγ-32A	ClA	E^{D},
5	57-5Aα	CC	D
6	17Bα-1Δβ-4Eα	ClA	E^{G},
7	10Δα-11Aβ	CC	b
8	13Bβ-2Δα	CB	G,
9	9Γη-24Aγ	ClC	G^{a},
10	7Γ-16Mα-5Aα	CB	D
11	17Eγ-18Aε	ClC	G^{a},
12	7Γ-16Mδ-	ClA	E^{F},
13	-10Aα-11Aα	CC	b
14	23-15Aβ-2Aβ	CB	G,
15	9Aγ-8Zδ	ClC	G^{a},
16	7Aα-16Kα-1Eα	:-CA	E.

79

1	25A-27Aα	.CC	D
2	17Aι-28-16Bα	CC	E
3	6Aβ-17Aδ-18E		
4	10Zδ-44α-10Γα-	.ClA	E,
5	-12Γα-9Γα-6Δα-51A	CC	G
6	2Aα	.CB	G
7	9Eα-8Γα	ClC	G^a
8	52Δα-16Γβ-1Γα-32A	.ClB	E^D,
9	64-16Iγ-1Eδ	.CA	E^b,
10	37-29Δ-51θ	.CB	G
11	62	CC	d,
12	63-2Aβ	.CB	G
13	9Γδ-7Aα-16Hγ-6Δα	CC	D,
14	17Aα-18Bα-33A	.CB	G,
15	9Eα-8Γα	ClC	G^a
16	52Δα-16Λβ-53Γ-32A	.ClA	E^D.
17	65α-17Δβ-4Bδ	.ClC	a,
18	7Aα-16θα-1Eα	.CA	E.
19	26A-17Γβ-7Bδ-16Bβ	.CB	E
20	17Λβ-1Δε-32A	ClC	E^D,
21	66-51A	.CC	G,
22	1Hα	:-CA	E.

81

1	8θα-9Γα-		
2	7Aα-16Zβ	.CC	E
3	18Δβ	CB	G,
4	23-15Bβ-9Bβ	.CB	G
5	9Γζ-34Aγ	CC	a
6	7Aα-16θα-1Eα	.CA	E,
7	26A-17Γβ-7Bδ-16Eη-10Bγ		
8	2Eβ	.CB	G
9	9Aα-19-4Bγ	.ClC	a,
10	17Aθ-7Γ-16Mη	.CA	E^a.
11	7Bδ-16Eη-10Bγ-	ClC	E^D
12	2θα-49α	.ClC	a
13	17Eα-7Γ-16Mγ	.CA	E^a.
14	7Aδ-16Δδ-10Bδ	ClC	E^D
15	2Eβ	.CB	G,
16	9Aα-8Bα-24Bα-8Δβ-	ClC	a
17	9Aα-52Eγ		
18	16Λα-1Γα	:-CA	E.

83

1	25A-27Aα	CC	D
2	7Aα-16θα-1Eγ	.CA	E^a
3	8Zγ-52Aγ		
4	5Aβ	.CB	D,
5	67-16Λα-9Zζ	CC	a
6	3A-1Aα	:-CA	E.

84

1	17Aγ-16Hδ	.CB	E,
2	15Δα-16Hα-		
3	5Aβ	.CB	D,
4	17Aβ-17Γα-8Bγ	.CB	G
5	9Eα-8Γβ	ClC	G^a
6	6Δβ-17Aδ-18E-10Zδ-44β	.CA	E,
7	28-10Bγ-	ClC	E^D
8	2θβ-49α	ClC	a
9	3A-1Aα	.CA	E
10	52Eβ-16Λα-16Δγ	.CC	E,
11	6Γα-17Aα-18Aα	.CB	G
12	9Γα-8Zε-	ClC	G^a_3
13	-7Bα-16Kα-1Eε-	.ClA	E^F
14	-10Aα-1Δθ	.ClB	E^F,
15	-10Aα-9Zγ-17Γγ-18Aβ	.CB	G,
16	9Δγ-8Bα-52Γβ		
17	5Aα	.CB	D,
18	17Zβ-17Δγ	ClC	G^a
19	3A-1Aε-	.ClA	E^F.
20	-10Aα-4Aγ	CB	b
21	15Bγ-8Bγ	CC	G
22	9Γα-3A-1Aα	.CA	E.
23	15Bε-28-2Bβ	.CB	G,
24	14Δ-6Γβ	.CB	D,
25	17Aα-18Aβ	.CB	G
26	9Γζ-34Aγ	CC	a
	17Bα-1Aα	:-CA	E.

88

1	7Aε-16Nβ	ClC	E^{F}
2	26A-17Γα-8Bβ	. CB	G
3	9Eε-34Bγ	ClC	G^{a},
4	17Bα-1Aγ	. CA	E^{a}
5	52Δβ-16Λα-16Δε	. CC	E .
6	6Aγ-17Aα-18Aα	. CB	G ,
7	52B-16Λα-1Δγ	. CA	E^{a} ·
8	7Bδ		
9	16Eη-10Bγ-2Bβ	(.)CB	G
10	52B-16Λα-1Γγ	. CA	E^{a} ·
11	51Λ-	. ClB	E^{D},
12	-10Bγ-2Bα	. CB	G
13	52Aβ-16Hε-6Aβ	. CB	D ,
14	17Aα-18Aδ	ClC	G^{a},
15	16Θβ-1Γβ-4Eα	. ClA	E^{G} ·
16	10Δα-4Γβ	. CB	b .
17	15Γ-8Bβ	. CB	G ,
18	9Γη-12Eβ	CC	G
19	15Bβ-8Bβ	. CB	G
20	52Aα-5Aβ	. CB	D ,
21	17Aα-18Aα	. CB	G
22	9Aα-19-4Bβ	ClC	a
23	27Γ-17Bα-1Aα	:- CA	E .

91

1	31-7Γ-10Zβ-		
2	2Δα	. CB	G ,
3	9Bα-8Bα-24Aγ	ClC	G^{a}
4	8Aβ-9Aα-7Aα-16Θα		
5	1Eα	. CA	E ·
6	28	. CC	G
7	15Γ-8Bγ	. CB	G ,
8	9Δγ-7Aα-16Zα	CC	E ,
9	6Γα-52Γα		
10	16Λα-1Δα	. CA	E ·
11	52Δβ-16Λα-16Δγ	. CB	E ,
12	52Δβ-16Λα-10H-		
13	53Aβ-2Aβ	. CB	G ,
14	9Δε-7Bα-16Zα-6Γβ	. CB	D
15	17Zβ-17Δα-9Eα	CC	a
16	3A-1Aα	. CA	E .
17	28-16E	. CC	E
18	13Γ-2Aα	. CB	G ,
19	9Aα-8Bα-24Aδ	. ClC	G^{a}
20	9Bα-8Bβ	CB	G
21	9Aα-8Γα	. ClC	G^{a}
22	7Aβ-16Iε-1Eα	:- CA	E .

90

1	31-7Γ-10Zβ-	ClC	E
2	2Aα	. CB	G ,
3	9Γα-8Γζ	ClC	G^{a}
4	3A-1Aδ	. CA	E^{b} ·
5	34Δα-11Γι-15Aδ-55B-30A	ClB	b^{a}
6	9Aα-7Aβ-16Iα-1Eβ	. CA	E ,
7	5Aα	CC	D ,
	17Aε-7Γ-16Mδ-	. ClA	E^{F} ·
8	-10Aα-4Aβ	. CB	b
9	15Aβ-2Aα	. CB	G ,
10	9Γα-8Γα	ClC	G^{a}
11	7Γ-16Mα-5Bγ	. ClB	D^{a}
12	20-9Γγ	CC	a
13	3A-1Bα	:- CA	E .

92

1	12Aα-11Bε-15Bα-	ClC	b^{c}
2	14Aγ-8Eβ	. CB	G ,
3	9Eα-36β-17Γδ-7Γ-16Mθ	. CC	E ,
4	17Hα-2Θα-33A	. CB	G ,
5	9Aα-38-7Bα-16Θα-		
6	1Zβ	. CA	E ,
7	43-9By-20	. CB	G ·
8	9Bα-36α-38-7Bα-16Kα-		
9	1Eβ	. CA	E ,
10	5Aα	. CC	D
	17Bα-1Bγ-	. ClA	E^{F} ·
11	-10Aα-4Aγ	CB	b
12	13Bα-15Bβ-8Γζ-	ClC	G^{a},
13	-7Bα-16Kα-1Eα	:- CA	E .

95

	10Eβ-17Aζ	*ClC*	*a*
	7Γ-16Ξζ-10Bγ	*ClB*	*F*[D]
2	9Zγ-17Γγ-18Aε	*ClC*	*G*[a]
3	-7Bα-16Kα-1Eβ-10Γβ	*ClA*	*E*
4	-17Aδ-1Δα	*CB*	*F*
5	17Zα-17Γγ-18Aβ	*CB*	*G*
6	9Δβ-8Zγ-52Z		
7	17Hγ-6Aα	*CC*	*D*
8	17Bα-1Bα	*CA*	*E*
9	52Eβ-16Λα-10H-	*ClB*	*E*
10	2Aβ	*CB*	*G*
11	9Γη-8Hβ	*ClC*	*a*
12	9Zγ-17Γα-8Δα-33A	*CB*	*G*
13	9Γα-52Aγ		
14	21-16Hα-6Γδ	*ClC*	*D*[a]
15	20-9Γγ-		
16	-3B-1Aα	*CA*	*E*

97

1	37-15Aγ-14I-13Aα	*CC*	*b*
2	46-17Γα-2Aα	*CB*	*G*
3	9Aγ-8Zε	*ClC*	*G*[a]
4	7Aα-16Kα-1Eβ-4Eα	*ClA*	*E*[G]
5	10Δα-11Aα	*CC*	*b*
6	13Γ-2Aα	*CB*	*G*
7	9Bα-8Bα-24Bα	*ClC*	*G*[a]
8	7Aβ-16Iε-1Eε-	*ClA*	*E*[F]
9	-10Aα-12B-45δ	*CC*	*d*
10	15Aβ-2Aβ	*CB*	*G*
11	9Δε-38-7Bα-16Ξβ-6Γβ	*CC*	*D*
12	7Aα-16Kα-1Eα	*CA*	*E*
13	10Zβ-11Aα	*CC*	*b*
14	13Γ-2Aβ	*CB*	*G*
15	9Γα-3Δ-16Kβ-		
16	1Eα	*CA*	*E*

102

1	8θβ-11Γβ-15Eα	*ClC*	*b*[G]
2	9Γι-7Aδ-10Zβ-	*ClB*	*E*
3	-11E-15Bγ-8Γβ	*ClC*	*G*[a]
4	7Aδ-16Δγ	*CC*	*E*
5	17Zα-17Γδ	*ClC*	*G*[a]
6	7Aα-16Zζ-4Eα	*ClA*	*E*[G]
7	10Zα(10Δα)-11Aβ	*CC*	*b*
8	15Γ-8Γζ	*ClC*	*G*[a]
9	7Γ-10Zε	*ClC*	*D*[a]
10	7Aα-16θα-1Eδ	*CA*	*E*[b]
11	34Δβ-11Γγ-13Bγ-8Eγ-2Δα	*CB*	*G*
12	11Bη-9Zη-8Zγ-9Eγ	*CC*	*a*
13	15Eβ-7Bα-16Zα-6Γγ	*CB*	*D*
14	17Aβ-17Γα-8Γε	*ClC*	*G*[a]
15	16θβ-1Γα	*CA*	*E*
16	52Aα-12Eη-11E	*CC*	*b*
17	15Bγ-8Γα	*ClC*	*G*[a]
18	7Γ-16Mδ-	*ClA*	*E*[F]
19	-10Aα-17Zβ-17Γβ-2θα-33A	*CB*	*G*
20	9Γδ-7Aα-16Zα	*CC*	*E*
21	10Zγ-17Λγ-4Bγ	*ClC*	*a*
22	17Aε-7Γ-16Mα-10Bβ-	*ClA*	*E*[D]
23	-4Aβ	*CB*	*b*
24	55A-	*ClC*	*b*[a]
25	-56-55A-30A	*ClB*	*b*[a]
26	9Γα-8Γζ	*ClC*	*G*[a]
27	7Aδ-6Δα	*CC*	*D*
28	17Bα-1Γε-	*ClA*	*E*[G]
29	-33Γ-16Γ-17Zα-17Δβ-11Γη	*ClC*	*G*[b]
30	15Δα-8Γβ	*ClC*	*G*[a]
31	17Eδ-7Aδ-16Δγ	*CA*	*E*
32	53Δ-6Γβ-17Eα-16θε	*ClC*	*a*
33	7Aβ-16Iα-1Eα	*CA*	*E*

103

1	10Δα-12Β-29Ββ	. ClB b ,
2	15Δα-3Α-1Αβ-4Εα	. ClA E^{G},
3	10Δα-11Αα-4Ζ	. ClB b^{d},
4	10Ια-22Α	CC b
5	13Γ-2Αα	. CB G ,
6	51Γ-4Ββ	. ClC a ,
7	7Βα-16Ζα-6Γδ	ClC D^{a},
8	7Αα-16Κα-1Εα	. CA E ,
9	69-8Εα	. CC G ,
10	13Γ-2Αβ	. CB G ,
11	9Αγ-7Γ-10Ζγ-	ClC E
12	17Ζβ-17Δα-9Ζζ	CC a
13	3Α-1Αβ-4Εα	. ClA E^{G}.
14	10Δα-11ΑΒ	CC b
15	13Γ-2Αβ	. CB G ,
16	9Δγ-19-4Ββ	. ClC a ,
17	7Αα-16Ζα-6Γδ	. ClC D^{a},
18	20-3Α-1Αα	:- CA E .

104

1	34Βα-9Ζα-8Αα	. CB G ,
2	9Αβ-14Ζα-13Αγ	. ClB b ,
3	34Αα-9Αα-19-4Αε	. CB b
4	13Γ-2Αβ	. CB G ,
5	9Γβ-9Ζδ	. CC a ,
6	3Α-1Αα	:- CA E .

106

1	39γ	. CC E ,
2	10Εβ-17Εδ-7Αα-16Ζγ-	ClB E^{F},
3	-10Αα-53Ββ-2Αα	. CB G ,
4	14Δ-6Γβ	CC D
5	26Α-17Γδ-7Αδ-16Δγ	. CA E ,
6	17Ηβ-33Α	CB G
7	13Γ-20α-33Α	. CB G ,
8	9Εα-8Γα	ClC G^{a}
9	7Γ-16Μγ	. CA E .
10	5Γγ-	ClC E^{F}
11	-10Αγ-7Γ-16Μδ-	ClA E^{F},
12	10Αα-11Αα	CC b
13	13Γ-2Αβ	CB G ,
14	7Γ-16Εδ-6Αβ	. CB D .
15	17Αϑ-20α-33Α	. CB G ,
16	9Γα-8Ζε-	ClC G^{a}
17	-7Βα-16Κα-1Εα	:- CA E .

110

	7Αδ-10Ζβ(10Δα)-11Αβ	CC b
2	13Γ-2Αβ	. CB G ;
3	9Αα-8Γα	ClC G^{a}
4	7Αα-16Κα-1Εζ-	. ClA E^{D};
5	-10Βα-12Β-4Γγ	CB b
6	13Γ-2Αα	. CB G ,
7	9Αβ-34Ββ	ClC G^{a}
8	2Δα	. CB G ,
9	9Εβ-34Αβ-2Αα	. CB G ,
10	9Βα-38-7Ββ-16Ιε.1Ζα	:- CA E.

111

1	27Γ-17Αϰ-	
2	-3Β-1Βα	. CC E
3	5Γβ-17Βα-1Δζ	. CA E ,
4	17Κβ-6Γβ	CC D
5	17Βα-1Βα	. CA E ,
6	26Α-17Γδ	ClC Ga
	7Αδ-16Δε	. CB E ,
7	26Α-17Γδ	ClC G^{a}
	7Αδ-16Δγ	. CA E .
8	17Ζα-17Γα-8Βγ	CB G
9	3Γ-16Κβ-1Εα	. CA E ,
10	5Γα-	ClC D^{a}
11	-7Βα-16Κα-1Εα	:- CA E .

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